UNIFIED FACILITIES CRITERIA (UFC)

LIBRARIES

CANCELED

UNIFIED FACILITIES CRITERIA

LIBRARIES

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

AIR FORCE SERVICES AGENCY (Preparing Activity)

Record of Changes (changes are indicated by \1\ ... /1/)

Change No.	Date	Location

CANCELED

FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with USD(AT&L) Memorandum dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate. All construction outside of the United States is also governed by Status of forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA.) Therefore, the acquisition team must ensure compliance with the more stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable.

UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Support Agency (AFCESA) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: Criteria Change Request (CCR). The form is also accessible from the Internet sites listed below.

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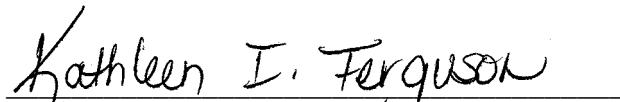
*   Whole Building Design Guide web site http://dod.wbdg.org/.

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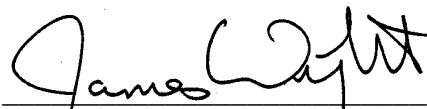
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**UNIFIED FACILITIES CRITERIA (UFC)
NEW DOCUMENT SUMMARY SHEET**

Description of Change: UFC 4-740-20, *LIBRARIES* represents an effort to bring uniformity to the planning, design and construction of general libraries. This UFC contains extensive modifications in the following areas:

- The document requires the use of the latest building codes

- New military requirements were incorporated and improved references to other documents were identified for energy conservation and antiterrorism standards

- Core functional areas were expanded to identify functions in current library operations and the expanding use of technologies to provide access to information 24/7

- Included extensive diagrams of functional relationships

Reasons for Change: The existing guidance was inadequate for the following reasons:

- Previous document was over 20 years old

- Need to convert to UFC format

- Incorporation of changes described above

- Update to referenced documents

Impact: The following direct benefits will result from the update of 4-740-20, *LIBRARIES*:

- Single, comprehensive, up-to-date criteria document exists to cover design of general libraries.

- Eliminates misinterpretation and ambiguities that could lead to design and construction conflicts.

- Facilitates updates and revisions and promotes agreement and uniformity of design and construction on installations.

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CHAPTER 1

INTRODUCTION

1-1   **PURPOSE AND SCOPE**
Unified Facilities Criteria (UFC) 4-740-20, *Libraries* was developed by the Libraries Branch of the HQ Air Force Services Agency (HQ AFSVA) and provides guidelines for evaluating, planning, programming, and designing Air Force (AF) general libraries. Guidance is provided for the development of library facilities appropriate for each individual base and its local program operations and requirements. Information contained in this UFC located on the HQ AFSVA website and may be viewed on-line or downloaded for printing and off-line viewing. An *Executive Summary* of this UFC may also be obtained at the HQ AFSVA website and contains an overview of the detailed content presented in this document.

This UFC provides guidance for development of library facilities appropriate to support the local program operations for individual AF installations and the AFSVA Golden Eagle Standards for library operations. This information may be used by architects/engineers (A/E), designers, base civil engineers (BCE), library directors, Major Command (MAJCOM) and headquarters review personnel, and others involved in the development and approval of library construction projects. It is intended to help all participants better understand Air Force library requirements, programs, and design criteria so they can effectively participate in the project development process.

Information provided by this UFC applies to the design of all new construction projects including additions, alterations, and renovation projects in the continental United States (CONUS) and overseas. It provides criteria for determining program requirements, site evaluation and planning, overall facility design, and design of outdoor and indoor spaces. This document is not intended to provide all of the information needed to identify project requirements or successfully prepare project designs. It is to be used in conjunction with Department of Defense (DOD) and Air Force specific documents, as required. Additional information on the unique program and design requirements of local projects must be obtained at the installation level.

This UFC is organized to provide the data and criteria needed at each stage of the project development process. It also applies to the procurement of design/build services for the above noted projects. Alteration and renovation projects should update existing facilities to meet the guidance and criteria within budgetary constraints. This UFC is not intended as a substitution during design for thorough review by individual program managers and operations staff.

1-2   **DISTRIBUTION OF RESPONSIBILITIES**
Air Force activities and A/E designers using the UFC are advised there are three levels of responsibility in the development of facility design. First, there is the local installation that identifies the need for a new, modernized, or enlarged general library facility and initiates the project development process. Second, the MAJCOM is responsible for

management of design and construction of their Air Force facilities. Third, the Air Force Services Agency sets the standards for all Air Force library operations and determines the facilities and equipment required to perform the operations.

1-3   **LIBRARIES MISSION STATEMENT**
The mission statement for library facilities at Air Force installations is to provide professional library programs and services to meet the military mission, educational, and leisure-time needs of the base community, including active duty personnel (including all U.S. and foreign military), families, retirees, civilian employees, and other authorized users. The mission objectives for Air Force libraries include the following three priorities ranked by order of importance:

> 1. Mission Support
> 2. Educational Support
> 3. Quality of Life Support

1-3.1   **Mission Support**
Installation mission support is the primary focus of each Air Force library facility. The support functions provided are determined by the library director at each installation and may include the identification, organization, and procurement of technical reference services and publications for official use. Funding for Air Force library facilities helps develop the services, programs, materials, and personnel needed to provide support for installation specific mission requirements.

1-3.2   **Educational Support**
Support for Professional Military Education (PME) and Voluntary Education Programs (VEP) for active duty military personnel and authorized civilian contractors is the second priority for Air Force library facilities, programs, and services at Air Force installations around the world.

1-3.3   **Quality of Life Support**
Air Force library facilities, programs, and services help improve the quality of life for active duty personnel, their families, retirees, and other authorized customers. This quality of life support is an important function of most facilities; however installation mission support is always the first priority.

1-4   **LIBRARY CLASSIFICATIONS**
The different types of libraries at Air Force installations include the following:

> • General Libraries
> • Academic Libraries
> • Technical Libraries
> • Legal Libraries
> • Medical Libraries

Academic, technical, legal, and medical libraries feature specialized content regarding the unique educational program curriculum needed to support mission requirements at

each installation. Requirements and design criterion for academic, technical, legal, and medical libraries are not included as part this UFC.

1-4.1 General Libraries
General libraries are centralized facilities that serve the whole installation and its entire population. General libraries are the most common type of library facilities and programs at most Air Force installations. These facilities offer information, materials, collections, and services similar to general public libraries found in most communities and schools. Design criterion for different types, configurations, and sizes of Air Force general library facilities is the focus of this UFC document.

1-4.2 Academic Libraries
Academic libraries are an integral part of the formal school or a college-level educational institution. Examples of these types of libraries are located at the Air Force Academy, Air University, Defense Language Institute, and Air Mobility School. Specific guidance regarding the Air Force Academy library is located in USAFA INSTRUCTION 34-102, *The USAF Academy Library System*.

1-4.3 Technical Libraries
Technical libraries provide detailed information and reference materials for personnel who work in research, development, testing and evaluation (RDT&E) programs or support other scientific and technical functions.

1-4.4 Legal Libraries
These facilities are located within legal offices and feature specific legal collections.

1-4.5 Medical Libraries
These facilities are located within medical facilities and feature specific medical collections.

1-5 AIR FORCE LIBRARY FACILITIES
The focus of this UFC includes specific information regarding requirements for the different varieties and configurations of Air Force library facilities that include the following:

- Large General Libraries
- Medium General Libraries
- Small General Libraries
- Library Extension Services (LES)
  - Branch Libraries
  - Field Libraries
  - Site Libraries
  - Expeditionary Libraries
  - Learning Resource Centers (LRC)

1-5.1 **Large, Medium, and Small General Libraries**

General library facilities may be large, medium, or small depending upon the military population and other requirements at each base. Refer to Section 2-2 Space Allocation Criteria for information regarding the size allocations for individual facilities.

1-5.2 **Library Extension Services (LES)**

Extension services libraries may have the general library functions or may emphasize a specific technical function with specialized collections. They may lack activities, children's functions, and a formal staffing structure. Facilities are based on local conditions and identified requirements of the community served.

1-5.2.1 **Branch Libraries**

Branch libraries offer a full range of materials and services. They have set operating hours, separate quarters, a paid staff, and a basic collection of materials. A general library or library service center directs branch operations.

1-5.2.2 **Field Libraries**

Field libraries house a collection of general reading materials issued from and directed by a general library or library service center to an Air Force, Department of Defense, or State Department activity for which the Air Force has responsibility (see DODI 1010.15, enclosure 11). Field libraries may or may not have set operating hours or paid staff and may operate on the honor system.

1-5.2.3 **Site Libraries**

Site libraries contain a collection of print and non-print materials issued to a remote location at the request of the local installation or services commander to enhance library services. They may or may not have paid staff and set operating hours. Site libraries operate under the administration of the local site commander and are serviced from a general library or library service center.

1-5.2.4 **Expeditionary Libraries**

Expeditionary libraries support special OCONUS military operations with less than 500 personnel or until the establishment of a Learning Resource Center is justified and approved. Collections of paperback books, newspapers, periodicals, and audio/visual materials are issued to library-inaccessible locations that are serviced from a MAJCOM, general library, or library service center.

1-5.2.5 **Learning Resource Centers (LRC)**

Learning Resource Centers are established at forward locations to provide deployed members the opportunity to access informational and educational resources to continue their professional and personal development. LRCs are a type of expeditionary library. They are setup at the discretion of the site commander at Air Force hosted operations and are collocated with education. LRC facilities support sustained operations where other education and library services do not exist.

1-6 **LIBRARY PROGRAMS**

Air Force library programs provide professional library services to meet the military mission requirements, educational, and leisure-time needs of the base military

community. See AFI 34-270, *Air Force Library and Information System (AFLIS)* for a detailed description of the organization, scope, staffing, and components of Air Force general library programs. The library director at each base operates library programs according to local needs and professional judgment in accordance with Department of Defense, Air Force, and MAJCOM standards. The size, type, and scope of collections are based on the number of military, dependent, and civilian personnel eligible to use the library and on any special base needs. Hours of operation are determined by local requirements and resources, with general libraries open a minimum of 55 hours a week.

1-6.1 **Library Extension Service Programs**
LES programs are authorized by MAJCOM s to provide specialized assistance for personnel who don't have access to established library and information services. Programs and services provided are based on local conditions and identified requirements of the community served.

1-6.2 **Learning Resource Center Programs**
LRC programs are established at forward locations to provide deployed personnel with access to informational and educational resources where other education and library resources do not exist. Education resources include college course testing, counseling, distance learning, and correspondence or independent study courses. Library resources, services, and programs provide on-site collections and on-line databases for educational research and recreational activities. Funding for expeditionary operations supports the LRC facilities, programs, services, and materials. The unit task code (UTC) LWLRC provides the manpower and operations statement. LRC programs may have set hours of operation and are serviced by responsible MAJCOM under the administration of the installation commander.

CHAPTER 2

PLANNING AND PROGRAMMING

2-1   **PLANNING CONSIDERATIONS**

The content of Chapter 2 provides guidelines and information needed for planning and programming Air Force (AF) library facilities. Library development planning and the programming of facility space and other requirements may be different for every project depending upon the unique factors regarding each facility. Unique local requirements concerning building programs, design criteria, and technical systems should consider the following:

- Existing library facilities on base and their adequacies and inadequacies relative to current and future needs.
- The potential for retention and renovation of existing facilities or need for additions or complete new construction projects.
- The current and projected user population to be served by the proposed facility.
- Specific population categories with potentially different library needs (such as spouses, children, or retirees).

2-1.1   **Program Definition**

The requirements document defines the program for design of an individual project, including functional requirements, design criteria, and cost information. This includes the space programming guidance found in this chapter, plus the site design, building design, and building systems concepts located in Chapter 3, *General Design Guidelines.* In addition, any unique, local requirements concerning building programs, design criteria, and technical systems should be included in the requirements document.

2-2   **SPACE ALLOCATION CRITERIA**

The recommended set of functional areas and spaces for different sizes of general library facilities are shown in Section 2-2.1 Table: General Library Space Allowances. This table provides example space size programs for representative facilities in each of three library program size categories. These are not definitive space programs, but guides to approximate space sizes recommended for the given size facility. For facility sizes not included in this table, proportionally adjust the program figures shown for the nearest larger or smaller sized facilities. In developing the space program for an individual facility, consider the issues of overall building design and relationships discussed in this document.

Each base may also determine that different or additional requirements are relevant to its local program. These considerations may affect the functional areas and spaces included in the program and their relative sizes. Consolidation of libraries into shared facilities with Base Education Centers (BEC) or other functions may also affect required

program spaces and sizes. Space allowances for general libraries found in AFH 32-1084, *Facility Requirements*, dated 1 September 1996 will be updated at its next revision to reflect the new space allocation information in the following Section 2-2.1.

2-2.1 **Table: General Library Space Allowances.**

LIBRARY SPACE ALLOWANCES

		SMALL			MEDIUM			LARGE		
Facility Size Category		up to 4000			4001-12000			12001 and above		
Category Population										
Population (this example only)		4,000			12,000			26,000		
Planning Factor (Formula)		Units (holdings, #seats, # staff, etc.)	Square Meters	Square Feet	Units (holdings, #seats, # staff, etc.)	Square Meters	Square Feet	Units (holdings, #seats, # staff, etc.)	Square Meters	Square Feet
Auth per AFH 32-1084			743	8,000		1672	18,000		2787	30,000
This Example			743	8,000		1672	18,000		2787	30,000
Public Services										
Circulation Desk	Staff areas times 150sqft	2	28	300	3	42	450	4	56	600
OPACs/ILS	1 OPAC = 30sqft	3	8	90	8	22	240	12	33	360
Reading Areas (tables & carrels)	30 sqft per seat	20	56	600	30	84	900	60	167	1,800
General Collection Books (36"w aisles)	Projected Vols for 20yrs divided by 10	18,000	167	1,800	40,000	372	4,000	70,000	650	7,000
Special Collections	Projected Vols for 20yrs divided by 10	750	7	75	2,000	19	200	3,000	28	300
Audio Collections	Projected Total for 20yrs divided by 10	1,000	9	100	3,000	28	300	4,000	37	400
Video Collections	Projected Total for 20yrs divided by 10	1,000	9	100	3,000	28	300	4,000	37	400
CD/DVD ROMs	Projected Total for 20yrs divided by 10	100	1	10	300	3	30	500	5	50
A/V Listening/Viewing Stations	30 sqft per station	2	6	60	6	17	180	10	28	300
Reference Collections	Projected Vols for 20yrs divided by 10	200	2	20	600	6	60	800	7	80
Reference Desk	40 sqft per desk	1	4	40	1	4	40	2	7	80
Periodicals (current)	Total divided by 1.5	75	5	50	125	8	83	175	11	117
Periodicals (back issues)	Total times 0.5 times avg # yrs retained	25	6	63	75	17	188	100	23	250
Microform Storage	1 cabinet = 10sqft	1	1	10	2	2	20	3	3	30
Small Group Study Areas	30 sqft per seat	4	11	120	12	33	360	16	45	480
Teen Area (Seats)	30 sqft per seat	4	11	120	20	56	600	30	84	900
Teen Area (Holdings)	Projected Vols for 20yrs divided by 10	400	4	40	1,400	13	140	2,000	19	200
Photocopier, Fax, Scanning	50 sq ft per machine	2	9	100	4	19	200	6	28	300
Newpaper/Paperback Racks	30 sqft per rack	2	6	60	4	11	120	5	14	150
Displays, Atlas & Dictionary Stand	50 sq ft per case	2	9	100	6	28	300	8	37	400
Public Services Sub-Total			358	3,858		809	8,711		1,319	14,197
Information Services										
Customer Computers/Lab	35 sq ft per computer	10	33	350	30	98	1050	50	163	1750
Printers/Stands; Projection Equip.	35 sq ft per machine	2	7	70	6	20	210	10	33	350
Storage	35 sq ft per closet	1	3	35	3	10	105	5	16	175
Information Services Sub-Total			42	455		127	1,365		211	2,275
Children's Areas										
Children's General Collection	Projected Vols for 20yrs divided by 10	1,500	14	150	4,000	37	400	8,000	74	800
Children's Special Collections	Projected Vols for 20yrs divided by 10	100	1	10	400	4	40	600	6	60
A/VCollections	Projected Totals for 20yrs divided by 10	100	1	10	400	4	40	600	6	60
A/V Listening/Viewing Stations	35 sqft per station	2	7	70	5	16	175	6	20	210
Children's Computers	35 sq ft per computer	2	7	70	6	20	210	8	26	280
Children's Story Alcove & Activities	10 sqft per seat	10	9	100	20	19	200	40	37	400
Storage	35 sqft per closet	1	3	35	3	10	105	5	16	175
Children's Sub-Total			41	445		109	1,170		184	1,985
Administration Areas										
Offices (1- Director)	125 sqft per area	1	12	125	1	12	125	1	12	125
Offices (2- Asst, IT)	100 sqft per area	2	19	200	2	19	200	2	19	200
IT Workroom/Server Area	125 sqft per area	1	12	125	1	12	125	1	12	125
Breakroom	125 sqft per area	1	12	125	1	12	125	1	12	125
Storage	35 sqft per closet	1	3	35	2	7	70	3	10	105
Staff Restroom	50 sqft per room	1	5	50	1	5	50	1	5	50
AA Sub-Total			61	660		65	695		68	730
Technical Services										
Workroom	125 sqft per area	2	23	250	3	35	375	6	70	750
File Cabinets/Shelving	10 sqft per cabinet	3	3	30	5	5	50	8	7	80
Staff Lockers	8 sqft per staff	3	2	24	8	6	64	10	7	80
TS Sub-Total			90	304		110	489		152	910
Support Areas										
Conference/Meeting Room	20 sqft per seat	18	33	360	50	93	1,000	100	186	2,000
Coffee Café (Dining&Serving)	20 sqft per seat	8	15	160	30	56	600	60	111	1,200
Storage/AV/Credenza	35 sqft per closet	2	7	70	5	16	175	10	33	350
Receiving/Loading Dock	7.5% of Gen Coll area		13	135		28	300		49	525
SA Sub-Total			67	725		193	2,075		379	4,075
Functional Area Sub-Total			660	6,447		1,412	14,505		2,313	24,172
Non-Assignable (Mech, Entry, Janitor, Lobbies, Corridor, Public Restrooms, etc)	24% sub-total		82	1,547		258	3,481		471	5,801
Other non-assignable			1	6		2	14		3	27
TOTAL SQUARE FOOTAGE			743	8,000		1,672	18,000		2,787	30,000
Authorization per AFH 32-1084			743	8,000		1,672	18,000		2,787	30,000

2-3   **FACILITY REQUIREMENTS**
In developing the space program for an individual facility, consider the issues of overall building design and relationships discussed in Chapter 3 and Chapter 4. The space allocation sizes provided are not definitive space programs, but guides to approximate space sizes recommended for the given size facility. Space requirements for Library Extension Services (LES) facilities and Learning Resource Centers (LRC) are based on local conditions and identified requirements of the community served.

In addition to the space program for each facility, consider the need or potential for consolidation of the library into a shared facility with a BEC or Learning Center. It may be beneficial for some functional areas, like computer labs, to be shared with the BEC. Management, supervision, and maintenance responsibilities may also need to be evaluated along with the facility requirements.

2-4   **CORE FUNCTIONAL AREAS**
Most general libraries have six specific core functional areas with local variation in the scope of operation under each category. These functional area categories include the following:

- Public Services Areas
- Information Services Areas
- Children's Areas
- Administration Areas
- Technical Services Areas
- Support Areas

2-4.1   **Public Services Areas**
The main components of all library facilities are the public services areas that primarily address materials and resources for adults, including collections, reading areas, computer terminals, and service desks. Growth and expansion should be added to these capacities, as required. The actual size of the general, reference, and special collections spaces and the relative size of each type of collection may vary considerably from library to library.

The public services areas include most of the public spaces of the library, such as the circulation desk, circulation spaces, general collection stacks, reference desk with consultation area for customers, reference collections, on-line public access catalog (OPAC) computer stations, reading areas, audio/visual (A/V) viewing stations, A/V collections, special collections, periodicals, microform viewing stations, small group study areas, display/bulletin board areas, reproduction areas, and fax/scanning areas.

2-4.2   **Information Services Areas**
Information services consist of computer workstation areas, computer labs, equipment, and related infrastructure, as required. Information services are included or housed

beside a local area network (LAN) room for servers, wiring, backups, homepage administration, virtual out processing, and report generation. Computers available for patron use are the primary components of the information services areas. If the library is to be collocated with the BEC, consider the need for a computer lab that may be shared.

2-4.3   Children's Areas
Dedicated children's areas are needed at most facilities to serve the dependent population. The children's areas should be visible for the protection of children and the staff. These areas feature computer workstations, toys developmentally appropriate for children, special reading collections, A/V materials and listening stations, and areas for group activities, such as storytelling or reading programs.

2-4.4   Administration Areas
Administration areas include offices for the library director, assistant library director, and information technology administrator, server room, staff break room, staff restrooms, staff circulation areas, and sufficient storage for library materials. Administrative activities also include work functions associated with general clerical office activities, customer service, materials ordering and processing, library operations planning and direction, and supervision of the facility and personnel.

2-4.5   Technical Services Areas
Technical services include areas for acquisitions, cataloging, receiving, processing, holds, reserves, weeding areas, supply storage, and a sink with running water for repair of library materials. The technical services area requires a large work room for conducting these activities and significant storage space for a wide variety of collection materials and equipment.

2-4.6   Support Areas
Support areas include public and staff only areas. Public areas include book drops for customer convenience, restrooms, payphones, exhibits, conference/meeting rooms, coffee cafes, and similar customer use areas. Staff only areas include "back of house" loading dock and receiving, maintenance, mechanical, and storage areas.

2-5   SITE EVALUATION AND LOCATION
Library facilities should be convenient and located near the center of base activities yet in relatively quiet and uncongested areas. Consider locating them near the health and wellness center, family discovery center, dormitories, housing, and shopping areas where possible. Avoid noisy locations, such as those near busy intersections and arterials, airfields, and industrial facilities. Library Extension Services (LES) and Learning Resource Centers (LRC) should be central to their respective service areas. Libraries may be included as parts of composite facilities with other community or mission related functions or should be close to base educational facilities.

Consider the potential for sharing some functional areas with the Base Education Center utilizing consolidated structures, if possible. Centralized information resources would provide one stop shopping on any subject. However, libraries must function separately, with only support spaces or information services shared. These facilities

should also be readily accessible from the main entrance to the base. Where possible, locate base libraries within walking distance of base operations, housing areas, shopping, and recreational facilities. Consider desirable natural site features, such as trees, vegetation, wetlands or existing water, potential water retention areas, and terrain. Existing natural site features may be incorporated into required site elements like antiterrorism/force protection (AT/FP) setback distances or vehicle barriers that may help to blend the facility into the natural setting of the site.

2-5.1 **Site Size**

The minimum level site area required is two or three times the gross area of the building. More area may be needed if the site has any special features, such as irregular contours, existing specimen trees, or rock outcroppings to be preserved. Assure the selected site will accommodate an adequate number of parking spaces convenient to library entrance and the AT/FP setback requirements provided in UFC 4-010-01, *DOD Minimum Antiterrorism Standards for Buildings*. A preliminary site design should be prepared to ensure the basic building and site criteria can be accommodated. Site size should provide for future expansion, if practical.

2-5.2 **Site Organization**

Locate the building on the site to provide the most convenient access and to take advantage of desirable views and natural site features. Examples may include providing protection from undesirable winds and glare; shading the building, especially glazed areas, from excessive sun in warm climates; and exposing the reading terrace to sun in cold climates. Outdoor reading terraces are recommended in most climatic regions. Local base personnel should consider if such outdoor spaces would be used. Locate book and A/V collection boxes either in front of the library near the street or next to a vehicular drop-off loop with convenient sidewalk access for library staff.

2-5.3 **Figure: Site Organization Criteria.**

Service Drive with Truck Access — Access Control Gate — Loading Dock — Dumpsters — AT/FP Stand-Off Distance — Staff Entrance — Technical Services — Administration Areas — Support Areas — Information Services — Views to Site — Natural Site Features (retention areas) — Views to Site — Outdoor Reading Terrace (optional) — Public Services — Children's Areas — Support Areas — Views to Site — Views to Site — Lobby — AT/FP Stand-Off Distance — Bicycle Racks — Clear Accessible Path to Entrance — Accessible Parking — Drop-Off Lane — Remote Collection Boxes — Visible to Vehicles and Pedestrians — Parking to the Side Allows Clear Views of the Building — Library ID Sign — Easy Pedestrian Access — Bus Shelter — Within Walking Distance of Base Housing and Lodging — Near Base Community Activities — Easily Identified Main Entrance

2-5.4 **Access and Visibility**

Provide easy access by automobile and base traffic. Choose a site with a prominent, visible location. The facility should be easily identifiable from approaching cars, base transportation, and pedestrian pathways.

2-5.5 **Site Utility Requirements**

Libraries shall be located near major utilities, including water, sewage, electricity, telephone, and gas lines. Provide water service, sanitary and storm systems, natural gas, steam service or fuel oil system (whichever is used), electricity, telephone, and fire alarm service to the building in accordance with requirements in AFH 32-1084, *Facility Requirements*, UFC 1-200-01, *Design: General Building Requirements,* and local service

procedures. Include connections to the base computer network and communication systems.

2-6　　　ACCESSIBILITY

New construction, additions, and renovation of existing facilities must be designed and constructed to meet accessibility requirements of the Uniform Federal Accessibility Standards (UFAS) published as Federal Standard (FED-STD)-795, and the Americans with Disabilities Act Architectural Guidelines (ADAAG). In the event of differing requirements, comply with whichever allows for equal or greater access to persons with disabilities. All functional areas shall be barrier-free and accessible to the physically handicapped. Site and building designs should enable physically handicapped persons to act independently and enjoy the full range of programs provided. Level changes may be included but must be accommodated by ramps suitable for wheelchair access, both indoors and outdoors. Include access to all areas and facilities, including staff and work areas, restrooms, water fountains, and pay telephones.

2-7　　　BUILDING CODES

All AF library facilities must be designed, constructed, and altered in accordance with Department of Defense (DOD) criteria. These criteria are based on national standards, private sector consensus standards, and model codes. Refer to UFC 1-200-01, *Design: General Building Requirements* for specific guidance. In the event of conflicts between model codes and DOD criteria, use DOD requirements.

2-8　　　ANTITERRORISM/FORCE PROTECTION (AT/FP)

The DOD objectives are to reduce personnel exposure to security threats and limit property damage. The DOD policy and guidance for antiterrorism and the physical security of facilities is contained in UFC 4-010-01, *DOD Minimum Antiterrorism Standards for Buildings* and UFC 4-010-02, *Design (FOUO) DOD Minimum Standoff Distances for Buildings*. These requirements are applicable for new construction, restoration, and modernization of existing facilities. Additional AT/FP guidance may be found at the following:

- AFI 10-245, *Air Force Antiterrorism (AT) Standards*

- AFI 31-101, *The Air Force Installation Security Program* (FOUO)

- AFI 31-203, *Security Forces Management Information System (SFMIS)*

- *USAF Installation Force Protection Design Guide*

- DOD Directive (DODD) 2000.12, *DOD Antiterrorism/Force Protection (AT/FP) Program*

- DOD Instruction (DODI) 2000.14, *DOD Combating Terrorism Program Procedures*

- *EUCOM Operations Order 03-11 with FRAGO* (latest edition) for United States Air Forces in Europe (USAFE) installations

2-9 SUSTAINABLE DEVELOPMENT

Use an integrated approach to the planning and design of libraries that minimizes energy consumption and optimizes life cycle costs. Use a practical combination of site selection and siting, energy conserving building envelope technologies, energy efficient lighting, occupant sensing controls, variable frequency drives for motors and exhaust fans, and high efficiency heating, ventilation, and air conditioning (HVAC) systems to achieve this goal. Incorporate renewable energy principles, such as day lighting, passive and active solar heating, natural ventilation, and photo-voltaics where they are life cycle cost effective.

2-9.1 Air Force Sustainability Requirements

It is Air Force policy to apply sustainable development concepts in the planning, design, construction, environmental management, operation, maintenance, and disposal of facilities and infrastructure projects, consistent with budget and mission requirements. Each Major Command should incorporate sustainable development using Leadership in Energy and Environmental Design (LEED™) criteria as defined by the United States Green Building Council (USGBC). The *Air Force Sustainable Facilities Guide* will provide tools, suggested guidelines for selecting candidate projects, and complete AF sustainable development policies. The goal is to have all MILCON/NAF projects in the fiscal year 2009 (FY09) program capable of achieving LEED™ certification. Submission to the USGBC for actual LEED™ certification is at MAJCOM discretion. This policy does not apply to Host Nation or North Atlantic Treaty Organization (NATO) funded projects.

Sustainable development concepts will benefit the Air Force by creating high-performance buildings with long-term value. They should be integrated into the development process and balanced with all other design criteria to achieve the best value for the Air Force. The economic analysis process need not change, but the elements to consider will now include sustainable technologies and their potential for long-term savings.

2-9.2 Environmental Protection Agency (EPA) Guidelines

When specifying products that are included in the Environmental Protection Agency's (EPA) list of affirmative procurement guideline items, designers must include the requirements for these products to meet or exceed the recycled material content standards established by the EPA. The list of products and their corresponding recycled content requirements are found at www.epa.gov/cpg/products. Listed products likely to be used in libraries include building insulation, carpet and cushions, cement and concrete, latex paint, floor tiles, patio blocks, restroom dividers, and structural fiberboard.

2-9.3 Environmental Issues

An Air Force Form 813, *Request for Environmental Impact Analysis*, must be completed and submitted to the Civil Engineer Squadron Environmental Flight at each installation after the submission of Air Force Form 332. Additional environmental information and up-to date information regarding integrated "whole building" design techniques and technologies also be obtained from the *Whole Building Design Guide* which further

explains the environmental issues related to building materials and provides technical guidance on green building material selection.

2-9.4   **Department of Defense (DOD) Energy Budget**

Design of new facilities must ensure that building energy consumption does not exceed the DOD energy budget figures.

2-10   **COST ESTIMATING**

Cost estimating procedures must follow the guidance given at the AFCEE and AFCESA websites. The following special factors should be accounted for when establishing initial estimates of project costs, in addition to the usual cost estimating considerations:

- Relatively large book stack dead loads may require special floor structure design.

- In larger facilities, clear spans for reading rooms may require particularized and costly structural systems. However, these may be essential to the character and functioning of these major focal spaces of the buildings.

- Acoustic isolation of conference rooms, audio/visual listening/viewing rooms, computer labs, printing and reproduction areas, individual and group study rooms, children's areas, and the elimination of noise transfer through HVAC ducts, may significantly impact project costs.

- Special construction items, such as movable partitions, theft detection and alarm systems, specialty wiring for computer terminals, etc., will incur additional costs.

- Provide preliminary soils analysis to determine whether high site work and foundation costs will be required. Local wind, snow, permafrost, seismic activity, tornados, hurricanes, floods, and other weather conditions must be considered for their impact on project costs.

- Consider the costs for meeting seismic requirements to stabilize book stacks.

- Conceal conduit and fiber-optic, local area network wiring, yet provide easy access for continuous upgrading. It is required for multiple areas in the library such as public services, information services, technical services, and children's areas. Customer set-up for laptop use, whether wireless or connected, is also required.

2-11   **OTHER CONSIDERATIONS**

Consider the site of the existing facility and its limitations with regard to the library's needs. Only permanent facilities should be considered for conversion to a library. Exceptions may be made for other buildings that are in excellent condition, subject to the location determinants in Section 2-5 Site Evaluation and Location.

2-11.1   **Adaptation of Existing Facilities**

Existing facilities selected for renovation for library use must be of permanent construction, capable of supporting required book stack loads, as well as electrical and cable requirements for computers and Internet access. They must be large and flexible enough to accommodate the full range of library functions. Structural bay sizes should be reasonably compatible with standard shelving sizes and spacing.

CANCELED

CHAPTER 3

GENERAL DESIGN GUIDELINES

3-1   **GENERAL**
This chapter provides general design and material guidance, including detailed requirements for the site, plus building exterior and interior areas. The focus of this information is for library specific issues. General professional knowledge with which A/Es are familiar is not addressed. These guidelines address design considerations for site and building layout, architectural character, function, circulation, and facility systems. Information is provided regarding the preferred materials and finishes that deliver the required durability, yet are still aesthetically pleasing. Functional diagrams and other guidance regarding potential layout configurations for different styles of building design are provided to illustrate how the functional area could potentially be organized.

Facility systems information is also provided regarding structural considerations, heating, ventilation, and air conditioning (HVAC) systems, plumbing, electrical, fire protection, life safety, communications, audio/visual requirements, alarm/security systems, and acoustical requirements. Special considerations for Library Extension Service (LES) facilities, Learning Resource Centers (LRC) and the renovation of existing facilities are also addressed to help facilitate the preparation of design specifications and contract documents which meet or exceed the *AFSVA Golden Eagle Standards*.

3-1.1   **General Design Process**
Design drawings and data are submitted in a series of stages, typically including:

- Concepts

- Early and Regular Preliminaries

- Final Working Drawings

Based on the space program defined in Chapter 2, general guidance for the design phase is addressed as part of this Chapter. Chapter 4 provides detailed design guidance for each functional area. Concept designs should conform to the design considerations provided in this chapter. Preliminary and working drawings should address this information, plus the specific space criteria, technical issues, and functional area requirements provided in Chapter 4. The illustrative designs in Appendix B help explain the programming and design guidance of the preceding chapters through example application to prototypical building floor plans.

3-2   **SITE DESIGN**
Site the library so that the main entrance is clearly visible and the architecture provides intuitive wayfinding cues to guide visitors to the main entrance. Preserve and utilize

natural site features, such as topography, trees, greenery, and rock outcroppings to help define the site and accent the building. Use landscape elements to provide definition, screening, and focus for the site.

3-2.1 Outdoor Areas

Locate the building and outdoor reading terraces, if any, to reflect local climate and micro-climate conditions. Outdoor reading areas, patios, furniture, and other outdoor amenities should be located near the main entrance. For security and supervision purposes, the main entrance is the single point of entry and egress for customers, except for alarmed emergency exits.

3-2.2 Parking

Parking areas should not dominate the building entrance and should be located to the sides of the building, where possible. Provide adequate light levels at night in all parking areas for security and safety. Provide handicapped accessible parking spaces per the requirements of the Uniform Federal Accessibility Standards (UFAS) and the Americans with Disabilities Act Architectural Guidelines (ADAAG). Consider the need for a dedicated staff parking area that is located near the staff only entrance to the building. Spaces for motorcycles and bicycles should also be provided as required by the base population. Consider the location of bicycle racks near the main entrance in a secure location. Refer to AFH 32-1084 for detailed information regarding the parking requirements.

3-2.3 Book and Audio/Visual (A/V) Collection Boxes

Book and audio/visual (A/V) collection boxes should be located with customer convenience in mind and allow drivers to place materials in collection boxes from their cars when the library is closed. Building openings for collection boxes create antiterrorism/force protection (AT/FP) liabilities and should not be incorporated in new construction. Existing building collection boxes should be replaced with remote boxes and these building penetrations should be permanently sealed. Remote collection boxes should be outside the minimum stand-off distances required by current AT/FP policies for blast mitigation.

Locate remote book and A/V collection boxes where they offer the most convenient access for customers, but do not cause traffic problems. Potential locations include at the front of the library near the street or next to a vehicular drop-off loop road. Remote collection boxes should be located on the driver's side of the drop-off lane in an island. Provide an efficient pathway from the collection boxes to the staff entrance to minimize the effort required to return these materials to the work room area without utilizing the public entrance to the facility. A/V collection boxes should be padded to prevent potential damage to A/V media. Consider utilizing combination units that feature both types of collection boxes and the potential impact of severe weather. Consider the need for a covered area to shelter the collection boxes drop-off point.

3-2.4 Building Access

Provide clearly identified pedestrian and handicapped access to the main entrance according to ADAAG requirements. Reinforce connections to related base facilities with

clear, direct pathways. Provide separate vehicular access for a main entrance drop-off area and for the service entrance.

3-2.5   Drop-off Areas and Bus Stops

Provide a loop road or similar drop-off area in front of the library. Consider the need for a covered canopy for the drop-off and main entry areas. Consider the need for a dedicated drop-off and pick-up lane near the front entrance that includes book and A/V collection boxes for customer safety and convenience. Provide bus stops and shelters conveniently located near the library with direct sidewalk access to the main entrance. Consider the need for a dedicated bus drop-off lane near the building entrance and a sign that reads, "Bus Drop-Off Lane Only. All Other Vehicles Prohibited."

3-2.6   Service Drives

The size of required service vehicles should be verified by the designer prior to planning the service access areas. A back-up spur should be provided for dead-end and service drives that exceed 30 meters (100 ft.) in length. Access should be near the loading dock and receiving area. Provide a service vehicle apron and consolidate service access, when possible. Screen or separate the service area from public use or traffic areas with attractive fences, depressions, berms, and landscaping. Ensure proper drainage if depressions are used. Do not cross outdoor activity areas with service access. Ensure compliance with AT/FP standards, particularly for dumpster separation and access control. Consult installation fire officials concerning emergency access.

3-2.7   Landscaping

Utilize indigenous plants that are appropriate for the climate and the local base conditions. Landscape plantings can dramatically improve the first impression of a facility and can also help control erosion. The existing landscape may also be utilized to create stand-off distances required for effective AT/FP measures and to create buffer zones around the facility. In some instances, landscaping may also reduce maintenance requirements. Follow sustainable design principles for xeriscaping and low water usage plant design. Do not use poisonous or toxic plants. Refer to the *USAF Landscape Design Guide* for additional information regarding landscaping.

3-2.8   Site Signage

An exterior signage system should be developed in accordance with UFC 3-120-01, *Air Force Sign Standard*. Exterior sign programs should be coordinated with the exterior design of the building and local base standards. Signs should also identify the building, parking areas, service areas, and facilities for the disabled. Provide information regarding the library's hours of operation on exterior signage that is visible to customers from their cars and at the entrance to the building.

3-2.9   General Site Lighting

Use lighting to highlight both customer and staff entrances after dark. Ensure that parking areas and the facility have adequate lighting for safety, evacuation, and security measures. Provide exterior lighting for parking areas and walkways utilizing high intensity discharge light sources. Provide incandescent, low brightness exterior patio lighting, as required.

3-3   **BUILDING DESIGN**
The main focus for most libraries should be the computer areas, reading spaces, and the accommodation of the general collection materials maintained by each facility. These areas should be located in the center of the public services functional areas and emphasized through building massing and roof forms. Other spaces, such as teen areas, reference areas, group study rooms or carrels, and administration should surround the main reading and computer areas to define their boundaries. Where the climate permits, an outdoor reading terrace can be an enriching addition to a library, however these optional areas are not practical for many Air Force facilities. If utilized, outdoor reading areas may be shaded or exposed to the sun, or variable with the time of day, depending on the climate. Terraces should be entered from spaces visible from the circulation desk and should have no entrances or exits to the outside except for emergency egress. Enclosure or screening of outdoor areas is required to prevent unauthorized entry or pilferage of library resources. Provide durable outdoor furnishings like table, chairs, and umbrellas.

3-3.1   **Building Organization**
The center of the building and its major architectural volumes should always be spaces occupied by the users. Stacks and support areas should be peripheral and subordinate to the primary use spaces. Create an overall organizing layout design concept. For example, the design might focus on a central reading space or computer stations, emphasize a nave-like axis of reading spaces, or surround a court or series of outdoor reading spaces. Spaces should be placed with sound and acoustics in mind.

Building space organization should take advantage of local climate conditions. For example, closed areas could be clustered on the north side of the facility in cold climates, and reading spaces could open onto south-facing reading terraces. Computer areas and labs are primary use areas that should be centrally located and in direct view of the circulation desk, if possible. Consider the potential need for access to the computer lab or conference room facilities after library hours that would allow the remaining library facilities to remain locked and secure during after-hours use of shared facilities. If consolidated with the Base Education Center (BEC) in a single structure, the space organization must allow the library to function separately when the BEC is closed. The library should be easily distinguished from other areas of such facilities. If collocated facilities share a server room, the server room must be accessible to the library's information technology administrator after hours.

3-3.2   **Building Circulation**
Circulation within functional areas must not disrupt the activities. It should occur at the edges of the spaces. For example, circulation to stacks to remote reading areas should pass by the side of the main reading space for adults, not through the middle. The circulation system should provide easy access, orientation, and visibility of the various parts of the facility from the main entrance. Customers entering the library should pass the circulation desk and have a primary view of the main reading space.

3-3.3   **Supervision and Security**
Provide only one public entrance/exit that is a prominent architectural component to facilitate customer wayfinding. A separate staff only entrance may also be provided that

is not in a prominent location, but near dedicated staff parking areas. Staff entrances are usually near the service delivery door or at the side of the building to provide convenient access to remote drop boxes. All other exits should be for emergency use only and alarmed. Staff at the circulation desk should have visual control over most of the reading areas for adults and children, the entry lobby, and entries to the activity areas, restrooms, and outdoor reading terrace. The circulation desk should not dominate the feeling of the library. Staff at the circulation desk or in the work room should be able to monitor equipment and activities in the computer, A/V, and microform areas. If utilized, outdoor reading terraces shall be accessible only from inside. Provide a magnetic theft protection system in the entry lobby. Level changes may be used to improve the view of reading areas from the circulation desk. Provide curved face "surveillance" mirrors or closed circuit television (CCTV) for all hidden areas (like behind stacks and around corners) for customer safety and theft prevention.

3-3.4   **Flexibility and Expansion**

The quantity of shelving provided should accommodate 20 years of anticipated growth of all collections and new technologies, if the square footage allowance permits. Projected individual growth rates should be determined for each facility. Design the structural system for easy expansion and additions, without over-designing the initial construction. Utilize shelving and other movable furnishings instead of permanent walls to define smaller sub-spaces and quiet areas. Movable furnishings provide flexibility to rearrange remote reading areas. Information Services is the most likely area to increase in activity and need expansion that may require an addition to the library building. Consider the need to locate the information services areas on an outside edge of the building to facilitate easier expansion.

3-3.5   **Architectural Character**

The architectural and interior design of the library must be integral and related. They both involve functional analysis and consideration of the appropriate environmental character, building organization, circulation, supervision, and flexibility requirements, as well as finishes and furnishings. Present an open, inviting image, while providing visibility of attractive activities from the approach and entrance. The library should have spaces which vary in character and scale to support different activities. Spaces should emulate the environments found at upscale commercial book stores with a range of lounge-like areas.

The main activity areas should be grouped in a continuously visible sequence with easy access between spaces. Single level facilities are preferred. Minor level changes may be accommodated with ramps. Level changes are recommended if they assist definition of different areas, while retaining visual access between spaces. Controlled, indirect daylight should be admitted into reading areas through clerestories, skylights, or windows. Use of daylight will reduce the load on electric lights, reduce reader eye strain (eye strain is greatest with fluorescents), and permit visual connection to the outside. Care must be taken not to expose books to direct sunlight to avoid damage from ultraviolet rays. Consider sunlight filtering devices applied to windows and solar shade screens to reduce ultraviolet exposure and reduce thermal heat gain.

Create an individual theme for the facility that may be host nation or base related. Many thematic environments can best be presented in lobbies, primary circulation areas, and the main reading area for adults. Theming should apply continuously to the entire design of the facility, from overall architectural expression to specific interior development. The architectural character should reinforce the focus of the building on the main reading room and reader activity spaces. Service and support areas should be subordinate and, where appropriate, expressed as secondary volumes. The library should have a distinctive presence on the base. Materials and detailing should be of high quality, equal to those of the most significant buildings on the base. The architectural style should comply with the base specific architectural compatibility guidelines and better buildings indigenous to the area.

3-3.5.1   Figure: Architectural Character

3-3.6   Building Signage

Building signage that identifies the library should be coordinated with the building sign standards at each base and in accordance with UFC 3-120-01, *Design: Air Force Sign Standard*. Consider the need for building mounted illuminated letters and the implications of providing electrical service to signs on the design of the building. Avoid exposed conduit and minimize penetrations to the building walls or roof structure. Library identification is normally most effective near the building entrance or on a covered drop-off canopy. Due to the location and orientation of the building, signage may be required on the back or side of the facility to provide better visibility and wayfinding cues for customers.

Provide hours of operation information at the front entrance that can be easily updated, as required. Cut-out vinyl letters mounted on the inside of glass store-front windows provides an economical solution that can be easily modified. Provide changeable signage to display the current force protection condition at the entrance to the library facility.

3-3.7   Special Considerations for Renovations

All building and functional area design criteria and recommended relationships apply to renovation projects. An existing structure selected for use as a library must be large and flexible enough to accommodate the full range of functions and programs. Open building floor plans are more suitable for renovation projects. A permanent structure is

required. Floor construction must accommodate book stack loads. Structural bay sizes should be reasonably compatible with shelving spacing. If needed, transform the image of the existing structure, both inside and out, to reinforce its identification as a library. This may require substantial facade treatment and interior finish changes to achieve the distinctive quality and presence appropriate for a library.

3-3.8   **Special Consideration for LRC and LES Libraries**
Design of Learning Resource Center (LRC) and Library Extension Services (LES) library facilities should reflect the same overall considerations discussed above for general libraries, with the following exceptions and special concerns:

- LES and LRC libraries may have some of the same functional areas as general libraries except they may not include conference/meeting rooms, activity areas, or children's areas.

- In LES and LRC libraries that do not have conference/meeting rooms and activity areas, there is greater flexibility in designing the entry areas. Views to active interior spaces from an exterior entry court are more easily achieved. Restrooms need not be located off the entry lobby; they may occur anywhere adjacent to major circulation in the building.

- LES and LRC libraries may be collocated in the same structure with other community facilities serving the same area or other related mission support facilities. These collocated facilities should be consolidated with as much sharing of spaces and support functions as possible. However, the library must occupy a distinct physical area of the building and remain separately operable, as necessary.

3-3.9   **Example Library Layout Diagrams**
Due to the different conditions and unique situations for each library facility, a variety of configurations may be utilized to layout the functional areas. The appropriate layout will depend upon many factors such as:

- New construction or renovation of existing facilities

- Existing infrastructure

- Site constraints

- Program definition requirements

The following facility layout diagrams provide general guidance regarding the desired relationships between core functional areas and potential building layouts. Modifications to these basic concepts will be required based upon the unique requirements of individual facilities.

3-3.9.1 **Figure: Central Information Services Layout Diagram**
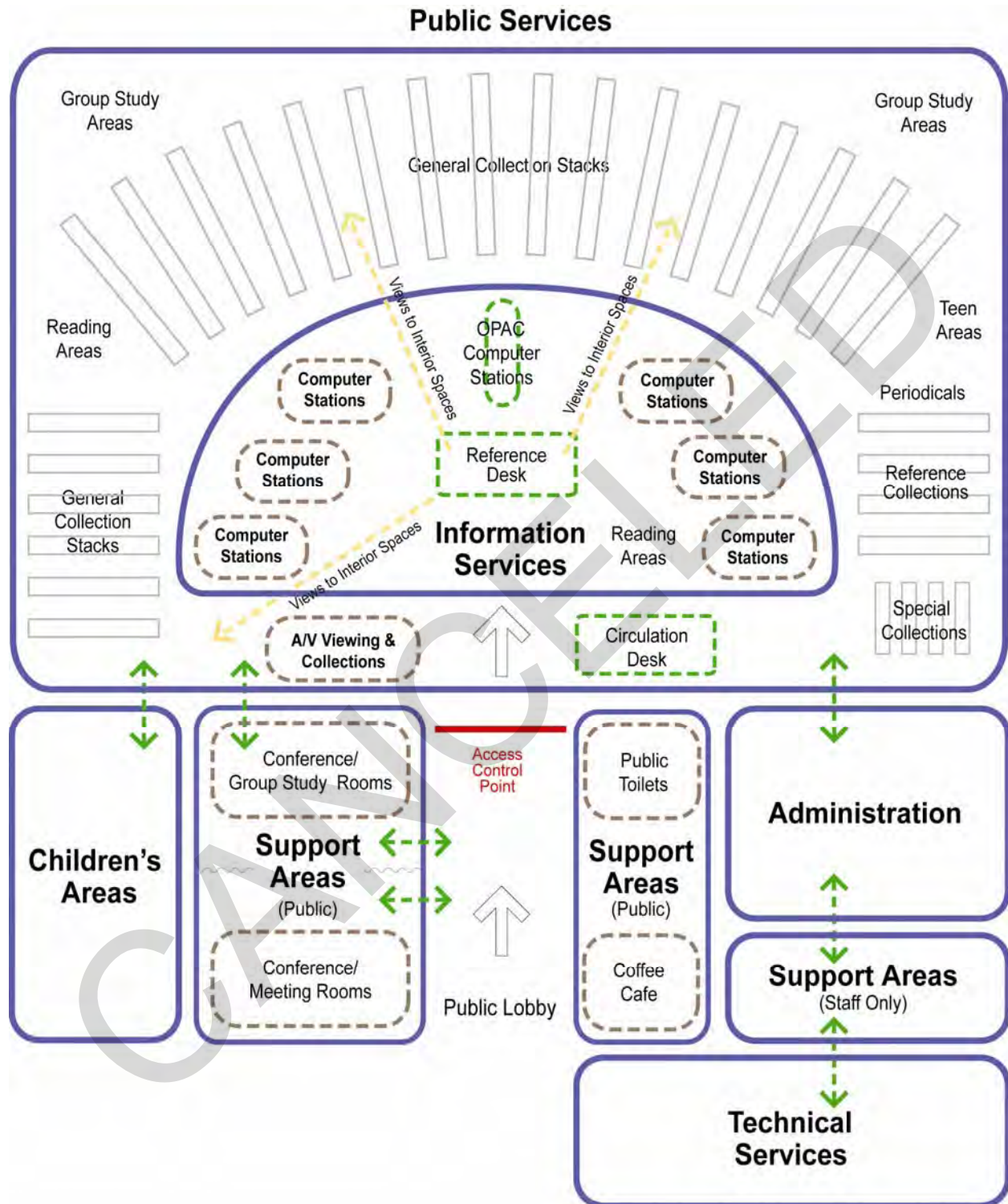
3-3.9.2   **Figure: Central Reading Area Layout Diagram**
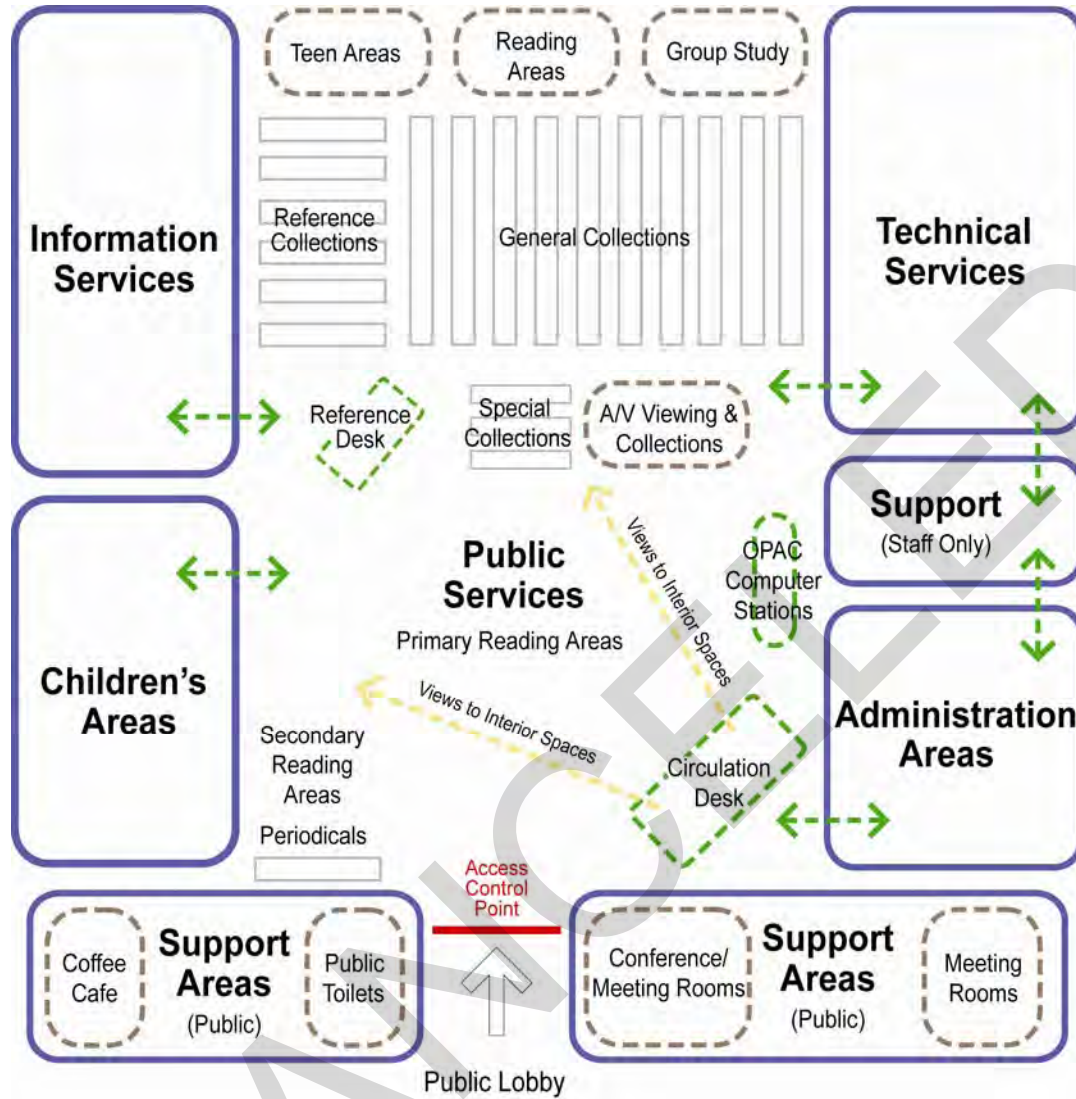
3-3.9.3   **Figure: Longitude Layout Diagram**
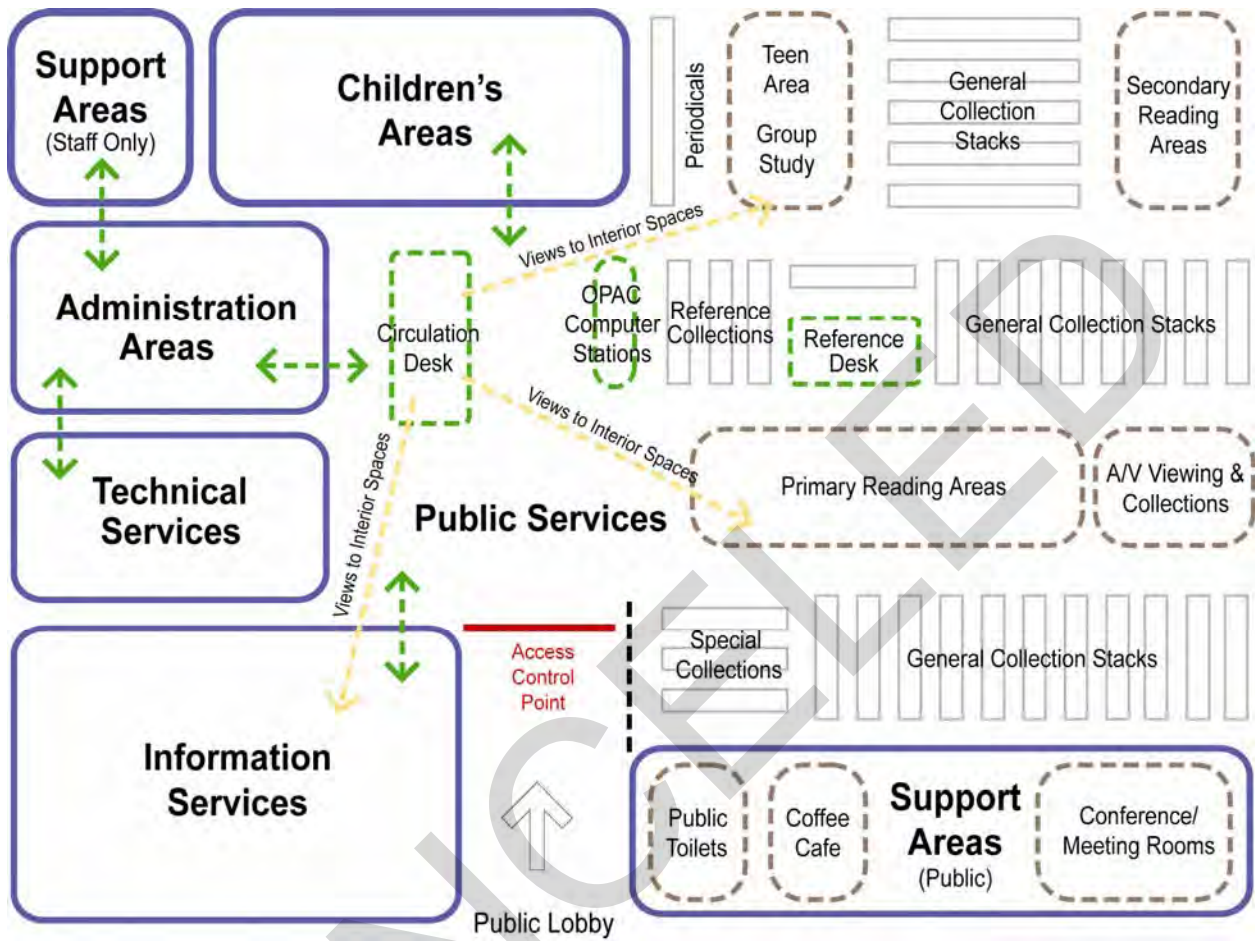
3-3.9.4 **Figure: L-Shaped Layout Diagram**
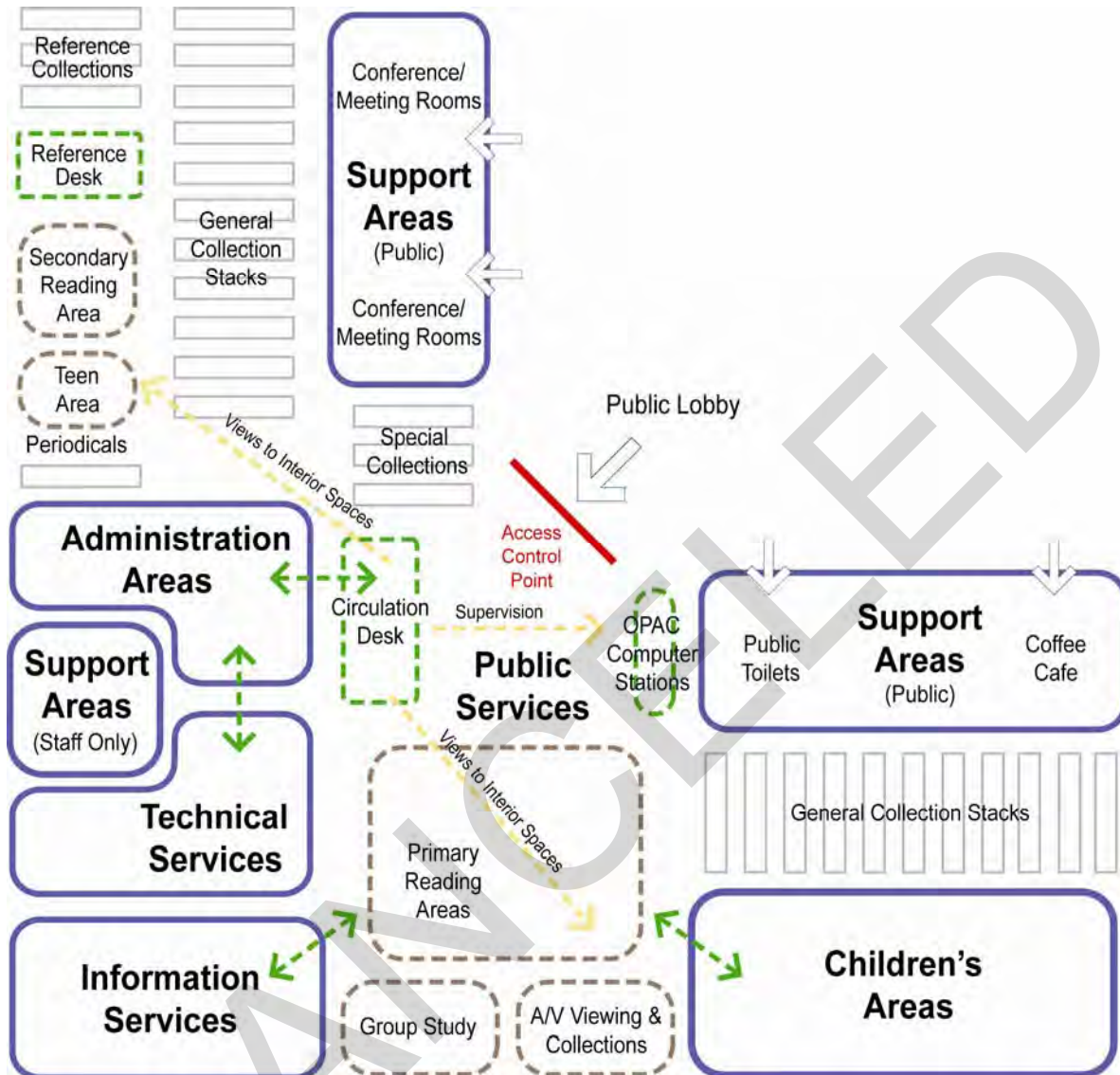
3-4   **INTERIOR DESIGN**

Surface materials and furnishings should be coordinated and selected by professional interior designers. Include a request for such services in the requirements document. Interior design selections shall be based on consideration of anticipated use, maintenance characteristics, life cycle cost, fire protection, and other safety requirements. Refer to the *Air Force Interior Design Guides*, MAJCOM specific interior design guidelines, and base specific architectural compatibility guidelines or facilities excellence standards for additional information.

3-4.1   **Furniture, Fixtures, and Equipment (FF&E)**

Choose furniture that is durable, comfortable, and attractive. Solid wood is a good choice and natural finishes can be utilized to accentuate the interior décor. Use solid wood corners if wood veneers are used. Circulation and reference desks need durable counters, such as granite or solid surface composite materials. Consider modular furniture components designed specifically for libraries. Counter fronts are high maintenance and require highly durable materials, because of the wear and tear. People stand, lean, or press against the counter materials at all levels of height, including child heights. Consider metal, solid surface or stone for the front counter panels and tops. Current systems furniture options should be considered as a high potential solution for library counters. If a systems furniture library counter is not included, it should at least be considered as a supplementary or complimentary feature to allow for future growth and change at the counter area. Systems furniture's storage and power capabilities, as well as stack ability, provide an incredible range of flexibility and options to serve the many needs of a library counter. The counter does not have to be a permanent, built-in, custom construction item.

Consider graffiti-proof furniture and materials in bathrooms, small group study areas, and other secluded places not easily visible by staff members. Floor material colors and textures will be primary considerations in the selection of coordinated furniture and equipment. Do not use compact or high density shelving in areas accessible to the public. Utilize book stacks with heavy duty construction and consider the use of 16 gauge metal stacks and shelves specifically designed for library use that can be secured to avoid being knocked over, yet still be moved with books in place. This is very beneficial when rearranging stacks or replacing carpet, because books do not need to be removed to relocate the stacks. Wooden book stacks are more attractive and quieter than metal stacks, but may require moving books prior to relocation. If single-tier steel bracket shelving is utilized, follow the National Information Standards Organization (NISO) standard ANSI/NISO Z39.73 -1994(R2001).

3-4.1.1 Table: Public Services Areas FF&E Requirements

Public Services - Furniture, Fixtures, and Equipment										
	Space or Area									
FF&E	Circulation Desk	Reference Area	OPAC Stations	A/V Stations	Reading Areas	Group Study	Teen Areas	Special Collections	General Collections	Reproduction & Print
Computer Data Connections	X	X	X	X	X	X	X	X	X	X
Computer Workstations	X	X	X				X			
Modular Desk	X	X	X							
Storage Shelving	X	X								
Tables & Chairs		X		X	X		X			
Lounge Style Seating					X		X			
Atlas Stand		X							O	
Dictionary Stand		X							O	
Tall Collection Stacks	X						X	X	X	
Low Collection Stacks	X	X					X	X	X	

X = required
O = optional

3-4.1.2 Table: Information Services Areas FF&E Requirements

Information Services - Furniture, Fixtures, and Equipment							
	Space or Area						
FF&E	Computer Areas	Computer Lab					
Computer Data Connections	X	X					
Computer Workstations	X	X					
Computer Carrels	X	X					
Modular Supervision Desk		X					
Storage Shelving		X					
Storage Closets		X					
Chairs with Rollers	X	X					
Printers and Printer Stands	X	X					

3-4.1.3 Table: Children's Areas FF&E Requirements

Children's Areas - Furniture, Fixtures, and Equipment								
	Space or Area							
FF&E	Computer Areas	Reading Areas	A/V Stations	A/V Collections	Story Alcove	Activity Areas	General Collections	Storage
Computer Data Connections	X		X					
Child Computer Workstations	X		X					
OPAC Station							X	
Storage Shelving								X
Tables & Chairs		X				X		
Lounge Style Seating		X			X			
Low Collection Stacks							X	
Rocking Chair					X			
AV Display and Storage				X				
Play Matt					X	X		
Bulletin board						X		

3-4.1.4　　　Table:　Administration Areas FF&E Requirements

Administration Areas - Furniture, Fixtures, and Equipment									
	Space or Area								
FF&E	Break Room	Server Room	LD Office	ALD Office	IT Office	Staff Restrooms	Storage Closets		
Computer Data Connections		X	X	X	X				
Computer Work Stations		X	X	X	X				
Tables & Chairs	X								
Modular Desk Units			X	X	X				
Storage Shelving/Cabinet	X	X	X	X	X	X	X		
Task Chairs		X	X	X	X				
Workbench		X			X				
Pegboard		X					X		
Bulletin Board	X								

3-4.1.5　　　Table:　Technical Services Areas FF&E Requirements

Techincal Services - Furniture, Fixtures, and Equipment									
	Space or Area								
FF&E	Work Room	Acquistions	Cataloging	Receiving	Processing	Storage Closets			
Computer Data Connections		X	X	X	X				
Computer Work Stations		X	X	X	X				
Tables & Chairs	X								
Modular Desk Units		X	X	X	X				
Storage Shelving	X	X	X	X	X	X			
Task Chairs	X	X	X	X	X				
Book Carts	X	X	X	X	X				
Dedicated ILS Station	X								
Bulletin Board	X								

3-4.1.6　　　Table:　Support Areas FF&E Requirements

Support Areas - Furniture, Fixtures, and Equipment									
	Space or Area								
FF&E	Airlocks	Vestibules	Lobbies & Foyers	Conf/Meeting Rooms	Coffee Cafes	Restrooms	Loading Docks	Storage Closets	Janitor Closets
Public Phone		X							
Storage Shelving/Cabinet				X			X	X	X
Tables & Chairs				X	X				
Bench or Other Seating		X							
Display for Pamplets		X	X						
Bulletin Board		X	X	X					
Walk-Off Matts	X								

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3-4.2   Interior Finishes
Coordinate material, finish, color, texture, and furniture selections to complement the overall building design and image. Select surface materials and furnishings to express a warm, intimate, and relaxed atmosphere. Use local materials to the greatest extent practicable to reinforce the user's sense of place or region. Use colors and finishes of surface materials to highlight and differentiate spaces designed to accommodate different types and levels of activity. Avoid glare and brightness differences, which may be disturbing or disruptive to readers, through lighting design, color, and finish selections. Avoid an overly cluttered appearance that may be too distracting when one is trying to concentrate on reading and studying.

3-4.3   Flooring
The library should be carpeted throughout, except as noted for heavy traffic areas and some individual spaces. Comply with the guidance provided in ETL 03-3, *Air Force Carpet Standard*. Tile, stone, or wood may be used for high traffic areas, like foyers and lobbies, and to reinforce desired circulation paths within the facility. Ceramic tile is the preferred flooring material for bathrooms. Flooring choices should be durable, easy to maintain, and easy to roll carts laden with books and other materials. Avoid using tile or other noisy flooring selections for areas of frequent cart traffic, due to the potential noise and transition strips required. Consider sound absorption issues when selecting flooring materials. Ensure that carpets and other flooring materials, such as rubber, comply with applicable Air Force and MAJCOM criteria.

3-4.4   Interior Walls
Walls may be composed of gypsum wallboard on steel studs, block walls, plaster on block walls, or other similar systems. Some spaces, like work rooms, computer labs, and study areas, may utilize a vinyl wall covering with a Teflon coating as a wainscot on the lower part of the wall with chair rails for wall protection. Vinyl wall covering wainscots may also be used for private offices, group study rooms, and conference rooms. Gypsum walls should utilize a slight textured, egg-shell finish and be painted with the base standard interior wall paint color. Walls in hallways should be painted the base standard interior color without chair rail trim and vinyl wainscots. Use low sheen paint for all painted wall surfaces and a medium sheen enamel or acrylic polyurethane for painted metal surfaces. Trim and millwork components shall be semi-gloss enamel or a natural stained finish. Partitions may be single layer gypsum wallboard, but should have cavity insulation and should be completely caulked at the top and bottom of each partition.

3-4.5   Ceilings
Acoustical ceiling tiles should be provided throughout a majority of the facility spaces, with the exception of service areas. Consider using a tile with .85 noise reduction coefficient (NRC) for large, open spaces and quiet rooms. Acoustical panels should also be provided, where necessary, to meet acoustical criteria. Consider the use of cloth banners to modulate noise, as well as add color, interest, and way-finding cues. Gypsum ceilings may be utilized in areas, like above the circulation desk, to accentuate interior architectural features and improve the functionality of specific areas.

3-4.6   Interior Signage

Interior signage is important to support the functionality of the facility and for wayfinding. Use colors, textures, and finish materials on the walls and floors to help define circulation patterns. Use signs with words and graphic symbols, where appropriate. Interior signage should be horizontal only and in upper and lower case text, except where specifically required to be in all capital letters according to Americans with Disabilities Act Architectural Guidelines (ADAAG) requirements. Interior signage shall comply with all other ADAAG requirements for the visually impaired. An interior signage system should be developed in accordance with UFC 3-120-01, *Design*: *Air Force Sign Standard*.

3-5   FACILITY SYSTEMS

Facility systems include specific guidelines for core building systems, such as structural, mechanical, electrical, plumbing, lighting, fire protection, life safety, and acoustics. Expeditionary libraries located in austere camp sites present unique system requirements and compliance is locally driven.

3-5.1   Structural

Select an economical structural system based on facility size, projected load requirements, local availability of materials and labor, and wind, snow, seismic, geologic, and permafrost conditions. Select and design the structural system based on analysis of projected future needs to accommodate future expansion requirements easily and economically. However, do not over-design the initial construction. Structural bay sizes should reflect space requirements, economy, and subsystem dimensions, such as masonry units and ceiling grids. Structural bay sizes should be compatible with standard shelving unit sizes and standard row-to-row dimensions. Keep the floors to under two stories in height, where possible, or the costs associated with designing in progressive collapse criteria will need to be incorporated.

3-5.2   Heating, Ventilation, and Air Conditioning (HVAC)

Provide heating, ventilating, and air conditioning (HVAC) systems in compliance with UFC 3-410-01FA, *Design: Heating, Ventilating, and Air Conditioning* and UFC 3-410-02A, *Design: Heating, Ventilating, and Air Conditioning (HVAC) Control Systems*. Also comply with the recommendations of the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), where applicable. Detailed procedures for HVAC control and design are also found in AFH 32-1084, *Facility Requirements*. Perform a life cycle cost analysis of available energy sources. Inside design temperatures and relative humidity levels shall conform to criteria in AFH 32-1084. Provide a night setback for the HVAC system. Provide zone control for maintaining different environmental conditions in each functional area. HVAC systems for activity areas, like conference and meeting rooms, should be designed to allow night-time operation while the rest of the facility is closed. Ductwork serving the children's areas and the activity areas shall be designed to help acoustically separate those areas from the rest of the facility. Provide tamper proof thermostats that may be internally controlled by the facility manager. Provide controls that are programmable and utilize security features so they are only accessible to authorized personnel. Provide mechanical exhausts for restroom spaces. Design of new facilities shall ensure that

building energy consumption shall not exceed the Department of Defense (DOD) energy budget figures.

Design HVAC systems to comply with the requirements of the most current edition of the International Mechanical Code (IMC). Utilize MIL-HDBK 1003/3, *Heating, Ventilating, Air Conditioning, and Dehumidifying Systems* as supplemental guidance until it is replaced. Comply with AT/FP requirements in the design of HVAC systems. Consider climate conditions, high humidity, industrial atmosphere, salt water exposure, or other adverse conditions when selecting exterior HVAC components to ensure durability. Refer to AFCESA Engineering Technical Letters for additional information. Design building HVAC systems to accommodate long-term flexibility, renovations, and additions.

Incorporate energy efficiency as a primary design consideration, including consideration of passive solar design applications. Consider the impact of computers on the HVAC designs and accommodate the possibility of adding additional computers in the future. Consider optimum sized active solar space heating and domestic hot water heating systems, if the MAJCOM's solar assessment shows a benefit/cost ratio of greater than one. The HVAC system shall be designed and constructed for easy maintainability, with all controls on one panel in the mechanical room. Provide for hook-ups to base energy management and control system (EMCS), if applicable.

3-5.3 **Plumbing**

Provide domestic hot and cold water, sanitary and storm drainage, plus propane or natural gas systems (if required), in accordance with design requirements established in UFC 3-420-01, *Design: Plumbing Systems* and AFH 32-1084, *Facility Requirements*, *International Building Code* (IBC), local requirements, and additional technical information provided on the AFCESA website. Copies of the IBC may be purchased from the International Code Council. Provide hot and cold water to all restrooms, sinks, janitor's closets, and coffee cafés. Hot water temperature shall not exceed 40 degrees C (105 degrees F) at the outlet. Provide floor drains in restrooms and janitor's closets. Provide shut-off valves at all fixtures. Provide frost-free hose bibs on all exterior walls if local climatic conditions justify them. Provide metering for gas service. Consider providing water metering where water conservation measures are in effect.

3-5.4 **Electrical**

Provide electrical service and distribution equipment, wiring receptacles and grounding, interior and exterior lighting and controls, emergency lighting, telephones, communication systems, fire alarms, and intrusion systems in accordance with UFC 3-520-01, *Design: Interior Electrical Systems,* National Fire Protection Association NFPA 70, *National Electrical Code;* and the latest installation design requirements. See the latest edition of *Electric Current Abroad* provided by the U.S. Department of Commerce, to determine voltages and cycles in overseas locations. Service grounding system and all wiring methods must meet the current NFPA 70 requirements. All electrical equipment must be Underwriters Laboratories (UL) listed or published proof of safety and performance from an approved independent testing laboratory shall be provided. Provide a sufficient number of floor and wall electrical outlets to accommodate current

needs and potential future growth. Refer to the publications provided on the Air Force Civil Engineer Support Agency (AFCESA) website for additional technical information. Base service ampere capacity upon the following minimum criteria for the building:

- Interior Lighting - 2.5 Watts per sq. ft.

- Receptacles - 1.0 Watts per sq. ft

- Exterior Area Lighting - 10 Watts per sq. ft.

Evaluate and include the following power needs to determine the required electrical service capacities: HVAC systems, microfilm and A/V equipment, computers or terminals, typewriters, copiers, printers, theft detectors, other special equipment required by users, and considerations for expansion. Provide metering for electrical power. Secondary underground service raceways may be PVC Schedule 40. Service grounding system and all wiring methods shall meet *National Electric Code* (NEC) requirements.

General convenience receptacles and special power outlets shall be specification grade. General spacing of convenience receptacles shall be a maximum of 3600 mm (12 feet) on center and 1500 mm (5 feet) on center where carrels occur. Floor convenience receptacles should be provided in reading areas and coordinated with the furnishing plan. Provide a system of empty raceways, outlets, and cabinets for future telephone and computer data port installations. All empty raceways should include nylon pulling line.

Consider provision of electrical power supplies, raceways station locations, telephone hook-ups for computer network connections for future installation of computer stations and data processing equipment. Provide electrical outlets and data ports in the floor for laptops in the study areas, reading areas, and coffee cafés. Consider the need for additional floor electrical outlets at circulation and reference desks, work rooms, offices for staff use, audio/visual areas, and in reading areas for customer use. The type and scope of computer systems that may be used can vary depending on local base decisions and technological developments.

Provide an intrusion detection alarm system and 120 volt wall clocks in all functional areas. Provide for wall-mounted public telephones. Consider providing a telephone equipment room inside the building, separate from the mechanical room, depending on local base practices concerning access to mechanical rooms.

3-5.5   **Fire Protection and Life Safety**
Fire protection and life safety designs must comply with the following sources for detailed guidelines and specifications:

- UFC 3-600-01, *Design: Fire Protection Engineering for Facilities*

- UFC 3-600-02, *Operations and Maintenance Inspection, Testing, and Maintenance of Fire Protection Systems*

- Latest edition of the <u>NFPA</u> standards

Occupancy for libraries is classified Assembly by NFPA 101 definition. In general, fire protection systems shall conform to conventional United States standards and codes. All new and refurbished buildings shall have automatic fire detection and/or fire suppression systems, which shall be monitored to send signals to the base fire station and/or central control or monitoring facilities. All materials and equipment shall be <u>Underwriters Laboratory</u> (UL) listed or Fire Marshall approved. The provisioning of fire protection systems and equipment shall be reviewed for all new and refurbished buildings as part of a "Fire Risk Analysis" and "Fire Strategy" study, executed during the design period. During the design period, careful consideration shall be given to the selection of specific design codes, standards, base specific criteria, and Base Fire Officer requirements that shall affect the equipment specifications, design, and installation. Equipment selections should not be considered in isolation, but shall be reviewed in unison with the overall fire strategy for each building and installation.

3-5.6 **Communications and Data**

Consult with the Communications Squadron at each installation for base specific requirements and guidelines. Due to the technical nature and rapidly changing communications and data requirements, refer to the following sources for detailed guidelines and specifications:

- <u>ETL 2-12</u>, *Communications and Information System Criteria for Air Force Facilities*

- <u>AFI 33-104</u>, *Base-Level Planning and Implementation*

- *<u>USAFE Information Technology Architecture</u>* (Latest Edition) for USAFE installations

Provide junction boxes with rigid conduit to the ceilings, raceways in cabinetry, conduit in floors or other required infrastructure for telephone and data connections. Telephone and data outlets may be independent of each other or combined into a single junction box. If these connections can be combined into a single junction box, the cover plate to that junction box must allow for multiple connections. In some unique situations, the cable television (CATV) internal video connection can also be combined into a single junction box with the appropriate cover plate. Confirm the preference for individual or combined telephone/data/video outlets with installation specific contacts.

Consider the need for access to public telephones. Provide wall-mounted public telephones, where required, in a central area, but away from areas where they may cause disruptions. Provide telephone enclosures, where possible, to reduce the amount of noise and afford privacy for customers. Incorporate a public address capability with the phone system to allow paging from all staff phones, where possible. Provide a public address system at the circulation desk if it cannot be incorporated in the phone system. Refer to <u>UFC 4-021-01</u>, *Design and O&M: Mass Notification Systems* for additional information regarding public address systems.

3-5.7   Audio/Visual (A/V)
Provide the required infrastructure to support audio and visual viewing stations, as well as group/classroom setup for activity rooms. A/V infrastructure should include electrical service and connectivity to the base communications network.

3-5.8   Interior Lighting
Libraries have specific lighting requirements that should be coordinated with the specific design details of each functional area. General lighting designs should provide light from as many directions as possible. Utilize fluorescent fixtures with low temperature, energy efficient ballasts, and lamps for most areas unless other lighting requirements are identified. Utilize daylight lamps for most applications, because cool white lamps are too cold for a library setting. Consider light fixtures that minimize glare and shadowing. The shelving faces of book stacks should be evenly illuminated and free from dark areas.

Indirect lighting systems utilizing high intensity discharge or fluorescent fixtures may also be used, where practical. Where natural light is available, provide lighting control systems, including ambient light dimmers to automatically reduce the intensity levels of artificial lighting. Interior lighting for new construction shall meet the current codes and the applicable recommendations of the Illuminating Engineering Society of North America (IESNA). Renovation of existing interior lighting shall meet the current recommendations of the IESNA to the extent possible. Additional guidance for lighting renovation in federal buildings may be found on the Federal Energy Management Program (FEMP) website.

User-operable task lights should be provided at tables and carrels in reading areas. Stacks may be illuminated with fluorescent lights specially designed to light the shelving faces. Stack lighting shall be arranged to work with stacks and aligned with the shelf placement to provide sufficient lighting of the collections. Lighting should be a combination of general, task, and day lighting. General lighting levels should be automatically reduced when day lighting is available. Coordinate the lighting plan and structural bay sizes with the shelving ranges in stack areas.

Lighting fixtures oriented perpendicular or diagonally to the book stacks provide more even illumination of the collections than parallel placement and greater flexibility for reconfiguring the layout of book stacks. Reading areas and office spaces are generally illuminated with 20-40 foot candles, unless more difficult visual tasks are required. Repairing and inspecting books in the technical services area generally requires higher levels of illumination. Provide battery operated or otherwise contingency powered emergency lighting systems and illuminated exit signs as required by applicable fire and life safety codes. Consider the use of canopy lights on the stacks for renovations and new construction.

3-5.8.1   Table: Interior Lighting Reference Chart
The IESNA tables for luminance generally show single values but also state a difference plus or minus one-third of the value is tolerable. Utilize the reference chart below as a

general guide for appropriate lighting levels unless other specific lighting requirements are identified.

IESNA Illumination Reference Chart	
Casual Reading	30 foot candles
Study Tasks	50 foot candles
Collection Stacks	30 foot candles
Circulation Desk	30 foot candles
Offices	30 foot candles
Workroom	50 foot candles
Computer Labs	10 foot candles
General Lighting	10 foot candles

3-5.9   Alarm Systems
Provide an alarm system for intrusion detection to protect equipment and assets. Provisions for an alarm system must be justified during the planning/programming process.

3-5.10   Closed Circuit Television (CCTV)
CCTV is designed to deter and reduce the risk of child abuse and protect staff from any unwarranted allegations of child abuse. Provide CCTV components and infrastructure, including cameras, monitors, conduit, cabling, power, and junction boxes as required for a complete and operational system. Place monitors at the circulation desk where they can be easily viewed by staff and in manned sections of administrative or technical services areas.

3-6   ACOUSTICAL REQUIREMENTS
The acoustical design concept should provide an environment in which wanted language sounds are heard and unwanted sounds are controlled, dissipated, and/or absorbed. Examine noise relationships between activity areas and provide appropriate acoustic protection, where needed. Zone quiet activity spaces away from noisy activity areas.

3-6.1   Exterior Noise
Minimizing exterior noise is typically required only when the center is adjacent to or near aircraft flight paths, major highways, or busy rail lines. The installation commander and community planner must approve use of sites exposed to high noise levels. Consult with the base civil engineer regarding the approval of sites exposed to high noise levels. If proximity to high levels of noise is unavoidable, acoustical measures are necessary. Maximum acceptable noise levels depend upon which area of the library is subjected to the noise and whether the sound is continuous or intermittent.

3-6.2   Interior Noise

Modulate interior noise generated within a room or space. In addition to standard commercial construction, two other requirements are necessary to ensure sound control within the library. The use of carpet throughout the majority of the library areas will help to minimize interior noise. Acoustical ceiling tiles should be provided throughout a majority of the facility spaces, except service areas. Acoustical panels should be provided, where necessary, to meet acoustical criteria. Consider the use of cloth banners to modulate noise, add color, visual interest, and help provide wayfinding cues.

Consider sound transfer between core functional areas (especially the children's areas), mechanical and electrical spaces, and staff work areas. Maintaining low noise levels in the main reading areas is important. Consider extending interior partitions to the structure above the ceiling. Partitions may be single layer gypsum wall board, but should have cavity insulation and should be completely caulked at the top and bottom of the partition. Provide solid core doors for openings onto noisy areas. Use fabrics and baffles to absorb sound. Provide acoustical baffles in all ductwork that penetrates sound attenuating partitions. Avoid back-to-back electrical outlet boxes. Consider glassed-in children's, teen, and information services areas to minimize noise.

CHAPTER 4

FUNCTIONAL AREA GUIDELINES

4-1 **GENERAL**
This chapter presents criteria specifically applicable to the design of each functional area and space of library facilities. Primary design considerations are presented for each functional area indicating the anticipated use, performance, organization, character, and relationships between each area's component spaces. Specific criteria is provided concerning space sizes, critical dimensions, storage requirements, furnishings, equipment, and technical requirements for each component space within each functional area. The technical requirements provided in this chapter address only items with special criteria for each individual space. General considerations are presented in Chapter 3.

The guidelines in this chapter apply to all sizes and types of library facilities. Specific space allocation guidance for the three prototypical sizes of general libraries is presented in Chapter 2. All guidance is provided based on the recommended space sizes and capacities for each overall facility size, supplemented by standard use and size factors, as appropriate. These recommendations may be modified in the design of an individual project to reflect local program requirements and capacity needs.

4-2 **BUILDING FUNCTIONAL AREA RELATIONSHIPS**
The entry lobby should have direct access to the meeting/conference rooms, restrooms and other public support areas. A movable security closure should be located to separate the entry lobby from the rest of the building. This will enable the public support areas to be utilized when the rest of the library is closed. The six core building functional areas include:

- Public Services Areas

- Information Services Areas

- Children's Areas

- Administration Areas

- Technical Services Areas

- Support Areas

The scope of operations may vary depending upon specific installation and size requirements for each facility. Expeditionary libraries and some medium or small general libraries may be required to combine some core functional areas due to space limitations, existing infrastructure, or unique situations regarding the specific library program for each facility.

4-2.1   **Figure: Building Functional Area Relationships**
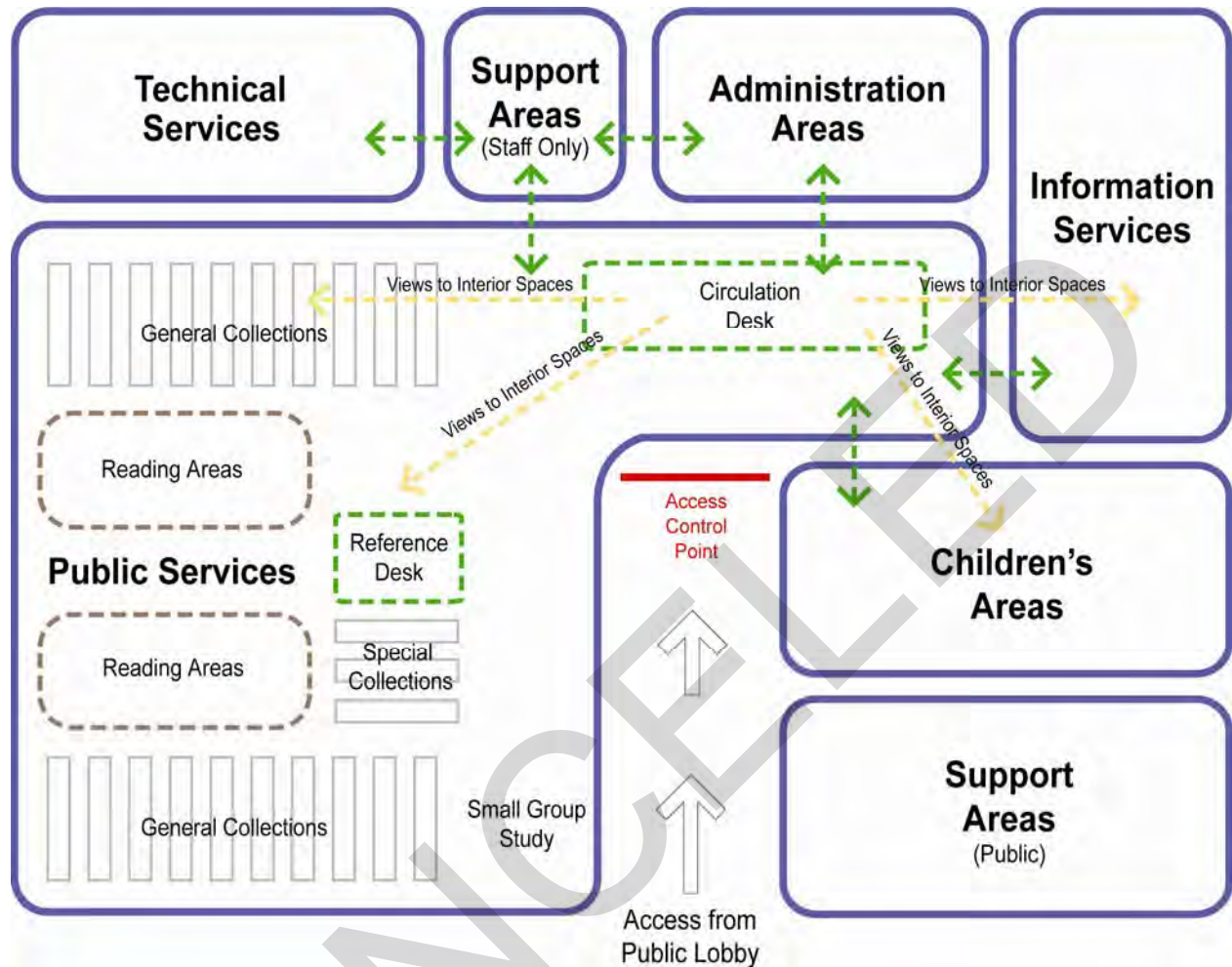
4-3   PUBLIC SERVICES

The component spaces for public services areas include reader stations, casual reading areas, study areas for individual and group use, general collections storage, reference materials, periodicals, casual browsing, and computer book searches using the On-line Public Access Catalog (OPAC) computer stations.

4-3.1   Primary Design Considerations

Design public services areas with the main reading space as the focal point. Areas for periodicals, reference collections, and audio/visual stations need not be in separate rooms, but should be well defined. Use alcoves, shelves, furnishings, level changes, and architectural elements to define different spaces. Organize public services area functions to match typical library use sequences starting at the entrance and proceeding on to the circulation desk, OPAC computer stations, book stacks, and reading areas. Locate functions that require frequent staff assistance, such as OPAC computer stations and audio/visual stations, close to the circulation desk. Organize shelving for easy collection searches and to accommodate changes in collection sizes and organization. Generally, shelves placed continuously along the edges of a space make

searches more difficult than do groupings of parallel shelves. Use full-height shelving in lieu of partitions to distinguish between primary and secondary reading areas.

Most of the public services and children's spaces should be visible from the circulation desk. This can be done by using low-profile furnishings. For instance, OPAC computer stations and shelving for special or reference collections and book stacks in other critical areas should be limited to a height of 1000 mm (3 feet, 6 inches), however this does not apply to most general collection stack areas. Accommodate the needs and preferences of customers by providing reading areas that vary in size, degree of privacy, orientation to the outside, furnishing types, and arrangement. Provide at least one small area with residential qualities, like soft furniture, for a casual, relaxing atmosphere. The outdoors should be visible from the main reading areas and access from the public services area to an outdoor reading terrace (if utilized) should be provided. Coordinate the location of convenience outlets with the locations of office and check-out equipment. Small group study areas may be placed near conference/ meeting rooms and/or located around the public services areas. Provide accommodations for wireless Internet connectivity throughout the facility.

4-3.2   **Figure: Public Services Functional Relationships**
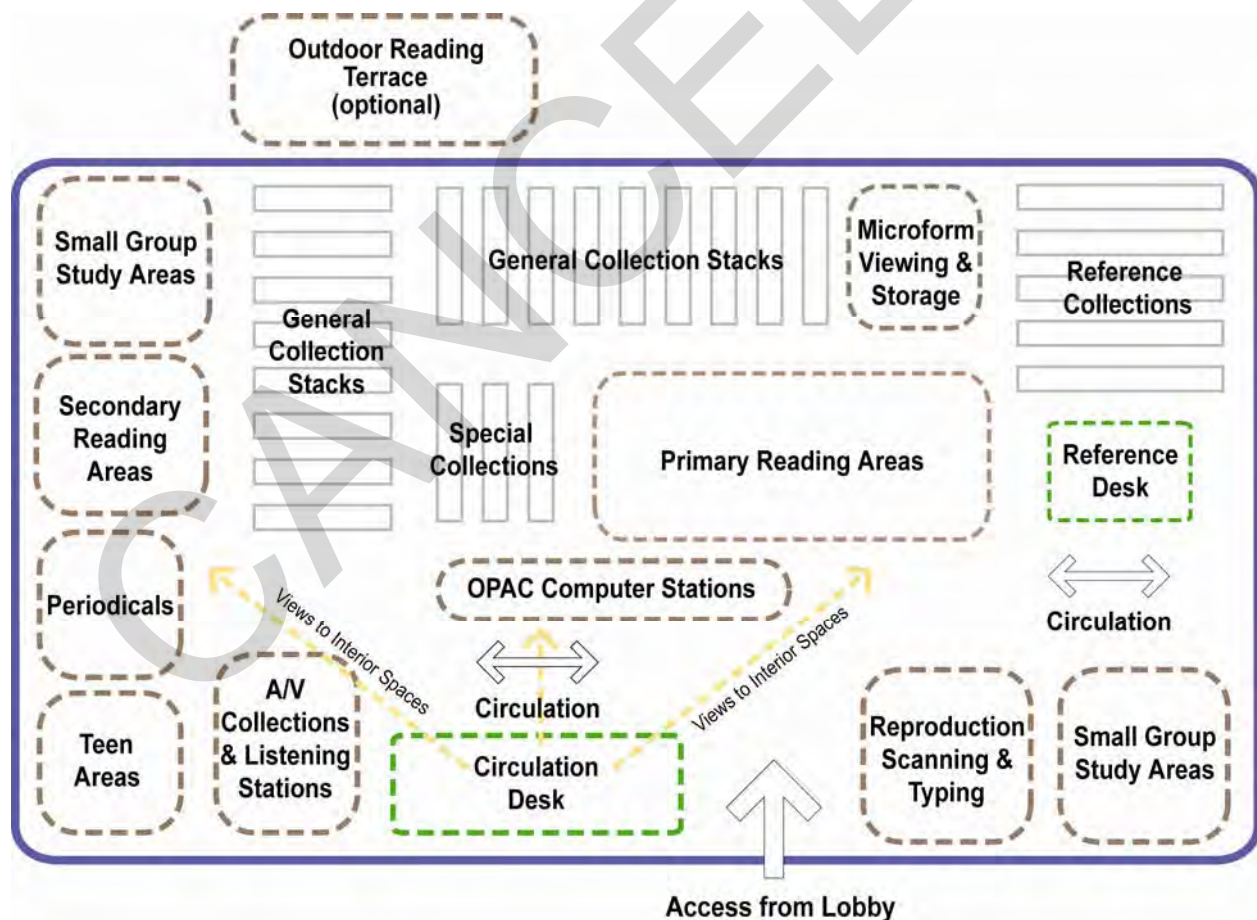
4-3.3 **Circulation Desk**
The main point of customer service interaction occurs at the circulation desk. Locate the circulation desk near the front entrance to facilitate surveillance of the entry lobby, computer area, children's areas, and the main reading areas. The circulation desk must be visible from the entry lobby and should have overviews of the public services and children's areas. Circulation desks should also have a view of restroom and conference/meeting room entrances. Locate circulation desks in close proximity to reference, microform (if provided), and A/V spaces. Design for the maximum amount of people at peak hours utilizing a modular style for flexibility and re-configuration. Primary services include check-out/return functions, registering borrowers, processing overdue materials, reserving materials, and generally assisting customers. Locate self check-out Integrated Library System (ILS) equipment across from or nearby the circulation desk for supervision and assistance.

Aesthetically pleasing circulation desks should be provided to create favorable customer first impressions. Provide raised counter edges to hide computer equipment and connections, avoid clutter, and enclose storage shelves or cabinets behind circulation desk. Provide ample counter transaction space and workspace behind the desk for staff operations. A minimum of 1800 mm (6'-0") clearance should be provided behind the circulation desk for staff activities. Include a lower transaction counter according to Americans with Disabilities Act Architectural Guidelines (ADAAG) requirements. Provide separate book and audio/visual (A/V) drop slots on the customer side of the desk for returns. Locate drop slots away from queuing lines to facilitate quick returns and avoid bottlenecks. Provide padding, as required, for A/V drop slots to prevent damage to media. Provide shelving and space for parking carts behind the desk to accommodate returned materials. Provide anti-fatigue mats behind the service counter areas where staff may stand for extended periods.

Provide space, electrical, and data connections for personal computers and monitors with high-speed Internet connections to enable library staff to access the ILS database information to search for available items. Provide fiber-optic connections so these computers may be linked to outside computer networks without occupying the phone lines. Conceal wires and connections, where possible. Provide a minimum of two telephone lines and a paging system with a microphone located at the front desk, or integrate the paging system with the phone system. Requirements for drawers, cabinets, browser boxes, and storage are site specific, so consult the end users during the design process. Provide security camera monitors at the circulation desk that are located out of the view of customers. Provide a locking cash drawer and storage cabinets, as required. Include space for lost and found items to be stored and provide lockable storage for staff personal items, like purses.

4-3.4 **Circulation Spaces**
Circulation spaces should be free-flowing and integrated into the functional areas to prevent the perception that they are corridors. Provide durable, easily cleanable floor materials that do not make noise when book carts are utilized.

4-3.5   **On-Line Public Access Catalog (OPAC) Computers**
Card catalogs have been replaced by OPAC computer terminals to look up information regarding available materials. These terminals are personal computers that require power and high-speed Internet connections to access the data networks. Public access catalog database information is typically managed by outsourced providers that require Internet connections to access this information. These terminals may also be utilized by library staff to access ILS database resources provided they have the required password access privileges.

4-3.6   **General Collections**
Areas for general collections are composed of book stacks for fiction, non-fiction, and paperback books that occupy a large majority of the public services space. The size of the general collections and reading areas must be balanced between the required number of reader stations and the size of the general book collection (including growth). Military libraries vary considerably in the sizes of their general collections and their needs for reader stations. The balance of space allocation to stacks and readers must be determined individually for the facility in question. Consider the need for OPAC computer stations located within the general collection stacks for customer and staff convenience.

4-3.7   **Reading Area**
Reading areas are composed of major and minor reading spaces. The majority of the reader stations should be located in the main reading space of the public services area. Minor reading spaces, containing some portion of the total reader stations, may be scattered about in semi-remote locations for private reading or serious study. Small general, branch, field, and expeditionary libraries may be too small to accommodate minor reading spaces. Provide data ports and flush electrical outlets for laptops and other equipment in the floor at each reading station. Coordinate spacing and location of electrical outlets with the furnishings layout.

4-3.8   **Outdoor Reading Terraces**
Where the climate permits, consider an outdoor reading terrace that may be used for adult casual reading or for children's story hours as an enriching addition to a library. Depending on the climate, it may be shaded or exposed to the sun, or variable with the time of day. The terrace should be entered from spaces visible from the circulation desk and should have no exits to the outside except for emergency egress. Enclosure should be a minimum of 2 meters (6 feet) high and visually permeable. Durable, outdoor furnishings, furniture, and shading should be provided. Local conditions, such as siting, building configuration, budget, and anticipated use should be used to justify the appropriate size requirements.

4-3.9   **Teen Areas**
Provide a dedicated space within the public services area for teenagers. Partially enclosed spaces near periodicals, A/V stations, and other items frequently utilized by teenagers are good locations for teen areas. Special collections for teens may also be located near the teen area. Do not locate the teen area within the Children's areas. Teen areas should include tables, chairs, lounge style seating, convenience electrical

outlets, and special interest teen items, like magazines. Provide computer stations with earphones and computer data ports for laptops, where possible.

4-3.10   Special Collections
Examples of special collections include the Air Force Chief of Staff (CSAF) recommended reading lists, leased books, current events, local interest items, testing/educational materials, learning programs, and college course materials. These collections are segregated from the general collections stacks. Requirements for special collections will vary at each installation. Provide a designated area for a paperback book swap display.

4-3.11   Audio/Visual Collections
Locate A/V collections in a highly visible area, preferably near the circulation desk where staff members can provide assistance easily. A/V materials include video home system (VHS) and digital versatile disk (DVD) movies, music and other compact disks (CDs), books on tape, tutorials, and instructional materials. Provide appropriate shelving, cabinets, and browser boxes for the media of each collection.

4-3.12   Audio/Visual Viewing and Listening Stations
Provide equipment for audio and video stations according to the requirements of each collection. Verify equipment requirements with each base library director, since special equipment requirements may be required depending upon the A/V collection items at each base. Locate A/V viewing and listening stations away from major activities and reading areas. Provide separate, sound-proof booths, where possible, and headphones for equipment at each station located in open areas. At least one station must be ADAAG compliant. A/V reviewing rooms should have one machine per room or station. Provide data ports for laptops and convenience electrical outlets at A/V stations in addition to the electrical requirements for the planned A/V equipment to be utilized at each station. Include cable television (CATV) outlets at viewing stations to allow current or future connectivity to the base television and communications resources.

4-3.13   Reference Desks
Locate the reference desk near the reference collection stacks. Include a consultation area with seating for customers and library staff adjacent to the reference desk. Provide accommodations for an ILS computer terminal for staff use at the reference desk. Consider the impact of limited staffing for some small and expeditionary libraries. The reference desk may need to be combined with the circulation desk when staff or space is limited.

4-3.14   Reference Collections
Reference collections will be installation specific and typically include lower height book stacks, file cabinets for maps and pamphlets, and dictionary and atlas stands. Provide tables and chairs for viewing reference materials, since they are not usually checked out.

4-3.15   Periodicals
Periodical areas include display shelving for magazines, newspaper racks, lounge chairs, accessory tables, and work tables. Provide a comfortable and inviting reading

area, similar to upscale commercial book stores, near the periodical collections. Utilize display shelves designed for magazines with storage areas behind for back issues.

4-3.16   Reproduction, Fax, and Scanning Areas

Provide electrical power for photocopiers and scanners, per the manufacturer's specifications. Provide accommodations for a photocopier(s) with coin operation or other payment equipment, as required. Two printers, maintained at the circulation desk, shall be networked to the computer stations to allow printouts to be sent from the computer stations and payment collected at the circulation desk. Photocopiers should have scanning capabilities or provide scanning stations within the information services area that include CD burners, floppy drives, and other media storage devices as technology changes. Provide accommodations for a fax machine and equipment for payment of phone charges. Provide a typewriter station for filling out forms not available electronically.

4-3.17   Displays and Bulletin Board Areas

Provide areas for displays and bulletin boards for the presentation of information about current events, special programs, and other changeable information. Displays and bulletin boards should be located near high traffic areas like lobbies, entry corridors, and similar areas. Vacant wall space should be considered for these display requirements along with areas for freestanding easels or kiosks. Consider the needs for display furniture, wall-mounted boards, and lockable cabinets. Provide display areas for print materials, three-dimensional objects, art, special promotions, community newspapers, areas for new book and A/V displays, and/or space for a central information kiosk, as needed.

4-3.18   Small Group Study Areas

Small group study areas may consist of enclosed rooms and tables with chairs located in open, but secluded areas. Enclosed rooms that accommodate two to four people require approximately 14 square meters (150 square feet). Rooms that accommodate two people require approximately 7 square meters (75 square feet). Small group study areas require comfortable chairs and tables. Provide a white board and trash cans in each enclosed small group study room. Provide data ports and electrical outlets for computers and/or laptops. Provide some private, one-person study rooms with glass doors, where possible, for individual study and test preparation. All enclosed group study rooms should be acoustically sound to minimize disruptive and distracting noise.

4-4   INFORMATION SERVICES

Computers available for customer use are the primary components of the information services areas. Areas for customer computers may be located in open areas inside public services or in an enclosed room or computer lab. Consider the need for a computer lab that may be shared with the Base Education Center for collocated facilities.

4-4.1   Primary Design Considerations

Open floor plans are required for visibility and supervision of activities. Consider providing some computer stations in an open area and some in enclosed areas, out of public view. Locate computer stations within view of the circulation desk and the

reference desk, where possible, to facilitate supervision and customer service support. Raised floors provide the most flexibility for power and data connections. Power and data connections may also be provided along walls or down columns where they may be concealed as much as possible. Utilize modular furniture with ergonomic designs specifically for computer use and include accommodation for disabled customers according to ADAAG requirements. Utilize indirect and daylight sources suitable for viewing computer monitors. Incorporate infrastructure to support wireless connectivity and consider the potential for the development of new technologies.

4-4.2   **Figure: Information Services Functional Relationships Central**
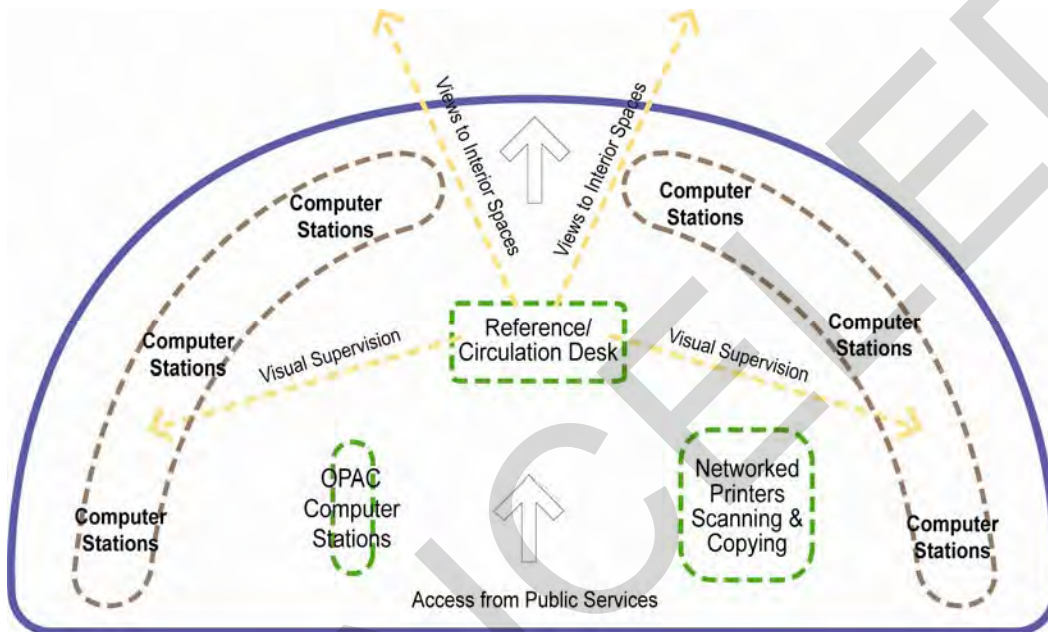
4-4.3   **Figure: Information Services Functional Relationships Lab**
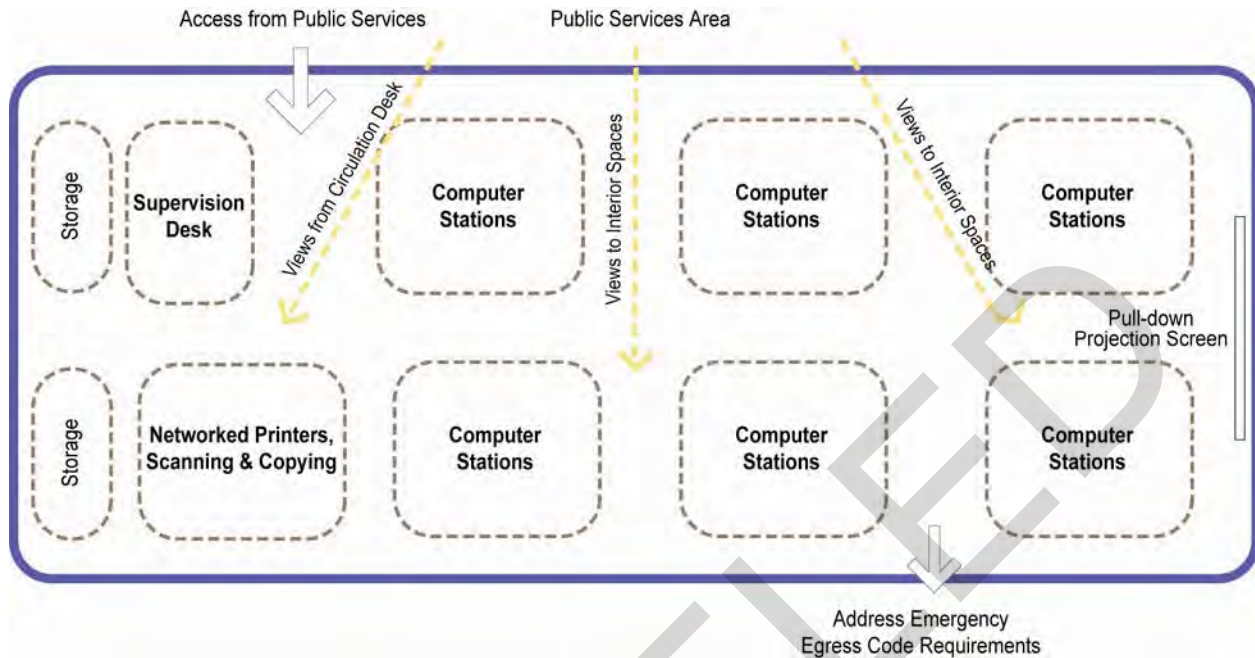
4-4.4   **Computer Areas and Labs**

Provide personal computers for public use with Internet service and on-line access to commercial, institutional, and government databases. Include access to networked printers and scanners. Provide a dedicated OPAC computer station inside the computer area for customer convenience. Provide trash and recycling containers adjacent to the printers and photocopiers. Include plug-in stations for laptop computers. Address workspace requirements for writing and study materials beside each terminal in the computer areas. Provide a pull down projection screen or empty wall surface for training and computer demonstrations. Provide electrical service, Internet connections, and CATV connections for A/V equipment. Provide plenty of lockable storage spaces for equipment and supplies. Consider providing some computer stations near the lounge or coffee cafe, if utilized, for a casual, cyber café atmosphere.

4-5   **CHILDREN'S AREAS**

Requirements for children's areas will be installation specific depending upon the dependent population, if any. Typical areas include general and special collections, reading/story/activity areas, and a computer area. Utilize child-scaled furnishings and equipment with attractive materials, colors, and graphics. Furniture, decorations, toys, and displays may also be used to reinforce the themed environment of the children's areas.

4-5.1   **Primary Design Considerations**

Children's areas should be segregated from the other areas of the library and acoustically isolated. Provide a separate, enclosable room and/or locate children's areas away from sensitive areas, such as public services. Design considerations should focus on general collections stacks, reading areas, group activities areas, browsing, A/V collections and viewing stations, and computer terminals. Locate the

children's areas within the view of the circulation desk and public services area. Provide an inviting place for children with furniture, furnishings, and equipment designed for young children and mounted at the appropriate scale. Provide ample storage for a wide variety of supplies, games, activities, A/V equipment, and extra shelving. Utilize materials that are easily cleaned and maintained. Utilize moisture-proof materials, where possible. Design heating, ventilating, and air conditioning (HVAC) ductwork to maintain acoustical separation from the rest of the library.

4-5.2   **Figure: Children's Areas Functional Relationships**
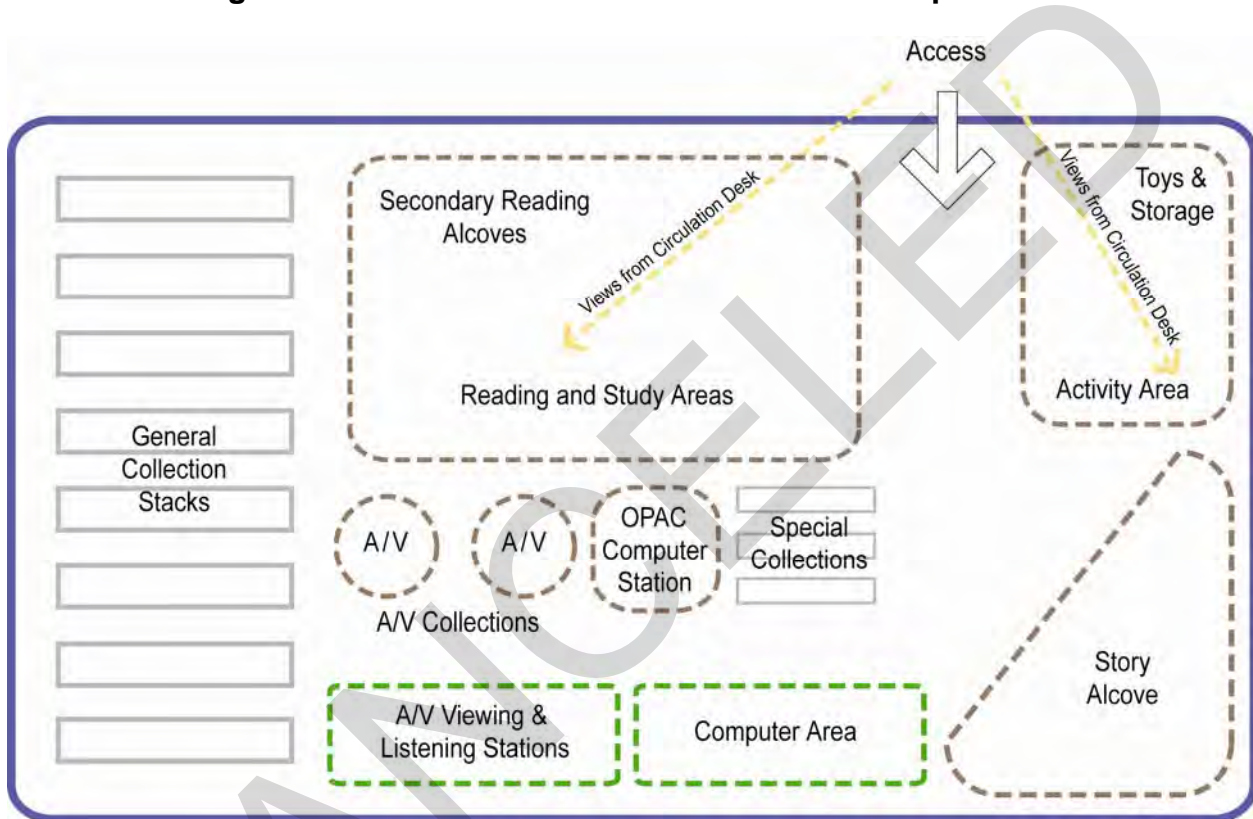
4-5.3   **General Collections for Children**
Children's book stacks should be no more than 1200 mm (4' feet) high to provide children access to books and surveillance of the space. Locate book stacks around the children's designated main reading and activity areas. Provide some lounge type seating in a casual, child friendly environment.

4-5.4   **Computer Areas for Children**
Provide personal computers with children's interest programs, games, and Internet access in a dedicated area within the overall children's area. Durable equipment, like headphones, monitors, and furniture made specifically for children, should be provided. Include access accommodations to networked services like printers and scanners located in the information services area. Consider the needs of adults assisting children at the computer stations and provide some adult seating accommodations. Provide data ports and electrical outlets for laptops that may be utilized by adults. Include a dedicated ILS station in the children's area to allow children and adults the ability to

research the collection information of the library and AF-wide collections in addition to the children's collections. Include storage opportunities for VHS tapes, CDs, DVDs, games, and other materials and equipment within the children's computer area.

4-5.5   **Reading Areas for Children**
Elementary and preschool aged children are the primary users of reading areas for children. Children's general collection stacks should surround the primary reading spaces. Accommodate the needs and various preferences of customers by providing reading areas that vary in size, character, furnishings, and orientation to the outside. Secondary reading alcoves may also be located within the general collections book stacks. Provide both individual and group reading activity areas with some lounge or bean bag type seating appropriate for children and include some seating opportunities for adults, so they are not always required to sit in child-sized seats. Child-sized tables and chairs are also needed for reading and studying. The outdoors should be visible from this area and an outdoor reading terrace is desirable, if possible.

4-5.6   **Audio/Visual and Special Collections for Children**
Special collections for children may be located within the general collections or reading areas. These collections may include books, periodicals, A/V, and other materials that will be installation specific, so consult the installation's library director for information regarding their existing and anticipated collections. Consider utilizing mesh bags to contain and display materials. Rods that go into shelving may also be utilized to display mesh or plastic bags of collection materials. Freestanding displays may also be utilized that rotate for easy access to selections. Provide adequate shelving and storage bins for collection materials and equipment.

4-5.7   **Audio/Visual Viewing and Listening Stations for Children**
Locate A/V viewing and listening stations away from major group activity areas like story alcoves, to provide some privacy and isolation from noisy events, where possible. Provide child-sized booths and stations with headphones. Utilize durable materials specifically manufactured for children, where possible. At least one station must be ADAAG compliant. Provide convenience electrical outlets at A/V stations in addition to the electrical requirements for the planned A/V equipment to be utilized at each station.

Provide equipment for audio and video stations according to the requirements of each collection. Verify equipment requirements with the library director of each facility, since special equipment requirements may be required depending upon the A/V collection items at each base. Include CATV outlets at viewing stations to allow current or future connectivity to the installation television and communications resources.

4-5.8   **Story Alcoves**
Design story alcoves for group and individual activities and as a focal point for the children's areas. Consider a rounded area that is appropriate for storytelling and similar group reading that can be easily reconfigured for different types of group activities. Story alcoves may be utilized for individual activities or small group activities, such as story hours, films, video presentations, and music appreciation. Floor pillows, carpeted steps, seating platforms, or movable, carpeted boxes may be utilized for special activities. Loud or disturbing group activities should be held in the conference rooms in

the public services area for adults. Provide convenience outlets for electronic equipment and locally controlled lighting on dimmer switches. Provide window coverings capable of providing dark conditions during the day for events requiring low lighting levels.

4-5.9   Children's Activity Areas

Activities in the children's areas are generally noisy, so design areas for learning activities to minimize the impact on the public services areas and the children's reading/study areas. Activity areas may be incorporated with the story alcoves, as required by space limitations, as dual service areas during different activity periods. Provide soft, indoor flooring and utilize equipment and toys developmentally appropriate for children. Provide a storage closet or cabinet large enough to accommodate miscellaneous activity area items.

4-5.10   Storage

Include a storage closet near the children's area for toys, puppeteer stages, displays, materials, and equipment. For renovation projects where closet space may not be available, provide bins for toy storage and smaller equipment when not in use.

4-6   ADMINISTRATION

Requirements for administration areas are the same for all types and sizes of libraries, only the size requirements will vary depending upon the overall size requirements of the entire facility. If possible, design administration areas with visibility to the outdoors and/or interior of the library.

4-6.1   Primary Design Considerations

Locate administration areas contiguous to each other for efficient operations. The circulation desk should be visible from the technical services work room and library director's office for coverage of the desk during times of limited staffing. Finish floors with carpeting or resilient flooring, except provide tile or vinyl flooring in the break room and staff restrooms.

4-6.2 **Figure: Administration Functional Relationships**
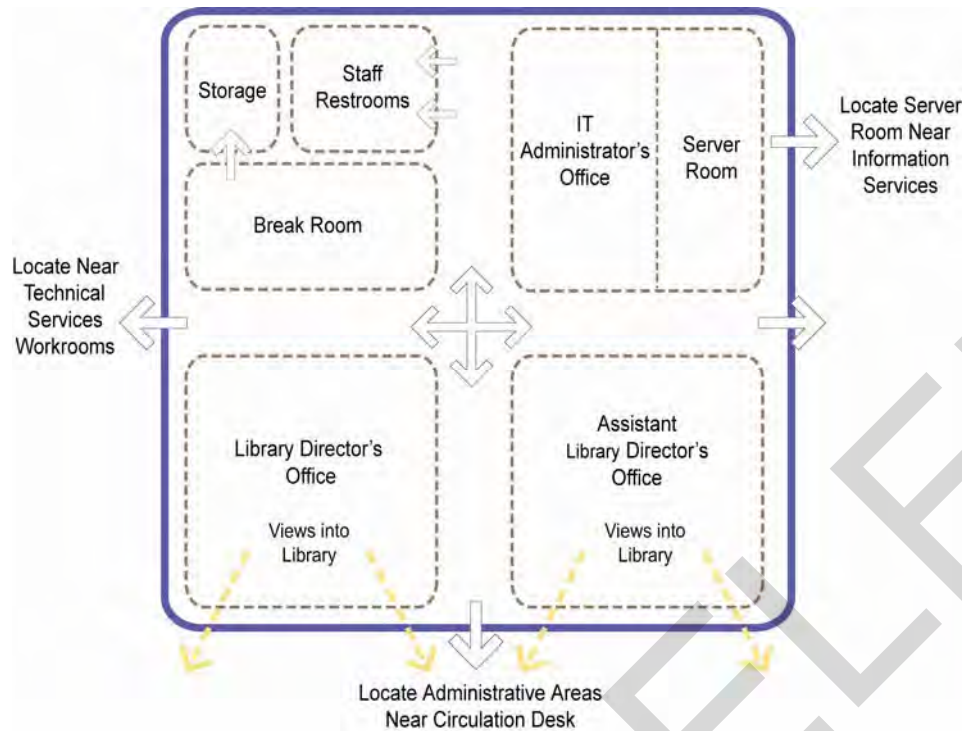
4-6.3 **Library Director Offices**
Locate the library director's office with a view to the circulation desk and public services areas, where possible. Include a window to the outdoors, where possible. Provide a desk, chair, visitor's chair, file cabinets, shelving, storage space for carts, and a lockable door. Include computer network connections with Internet access and a telephone line. Consider the need for a conference table, sofa or love seat, and coffee or end tables with lamps.

4-6.4 **Assistant Library Director Offices**
If an assistant library director is included in the library program, locate this office near the library director's office and the technical services work room. Provide a desk, chair, visitor's chair, file cabinets, shelving, storage space for carts, and a lockable door. Include computer network connections with Internet access and a telephone line.

4-6.5 **Information Technology Administrator Offices**
Where possible, combine the IT administrator's office and the server room, or locate them closely together. Provide a desk, chair, visitor's chair, file cabinets, shelving, storage space for carts, and a lockable door. Include computer network connections with Internet access and a telephone line. Provide a table for computer repairs in the information technology administrator's office or the server room.

4-6.6 **Server Rooms**
Provide a dedicated server room to accommodate computer server racks and network operations with easy access to power, cables, and computer service items. Include a work area and table for servicing of computers with ample storage space for spare

parts, monitors, and other equipment. Provide data connections to access outside computer networks, Internet service, and at least one telephone line for voice communications in addition to data requirements. Where possible, combine the information technology administrator's office and the server room, or locate them closely together. Provide a desk, chair, visitor's chair, file cabinets, shelving, storage space for carts, and a lockable door. Provide independent climate control for the server room to maintain appropriate conditions without affecting other areas of the facility.

4-6.7   **Break Rooms**
Provide a separate break room adjacent to the technical services work room if space allows, or design a designated break area within the work room. Include a sink with hot/cold water, garbage disposal, soap dispenser, cabinet storage space, towel dispenser, task lighting over the counter, and counter space with electrical service for a coffee maker and microwave oven. Provide at least four ground fault circuit interrupter (GFCI) electrical outlets at counter level. Provide space, electrical, and water service for a refrigerator with an automatic icemaker. Provide a table with matching chairs for meals and activities.

4-6.8   **Staff Restrooms**
Provide separate male and female [ADAAG](#) compliant staff restrooms near the work room. Include a toilet, sink, mirror, room for a trash can, and a lockable door. Include a urinal and a toilet in the male restroom. If only one uni-sex restroom is possible, provide both a urinal and a toilet. Provide air fresheners and deodorizing systems. Provide at least one GFCI electrical outlet.

4-7   **TECHNICAL SERVICES**
Activities conducted in the technical services areas include operational library functions, such as acquisitions, cataloging, receiving, and processing of collection items. These activities are usually collocated inside a large work room along with storage areas, supplies, and equipment.

4-7.1   **Primary Design Considerations**
Locate the technical services areas near the administrative areas for efficient operations. Include ample storage areas for carts with books and A/V materials. Workstations and cubicles for technical service operations may be designed in an open office concept with modular furniture components and partitions separating work areas. Provide a service entrance and loading area adjacent to the work room to facilitate the shipping and receiving of materials and equipment. Provide dedicated inter-library loan (ILL) computer terminals for use by the staff, since most installations have restrictions regarding the use of computers on the defense switched network (DSN).

4-7.2   **Figure: Technical Services Functional Relationships**
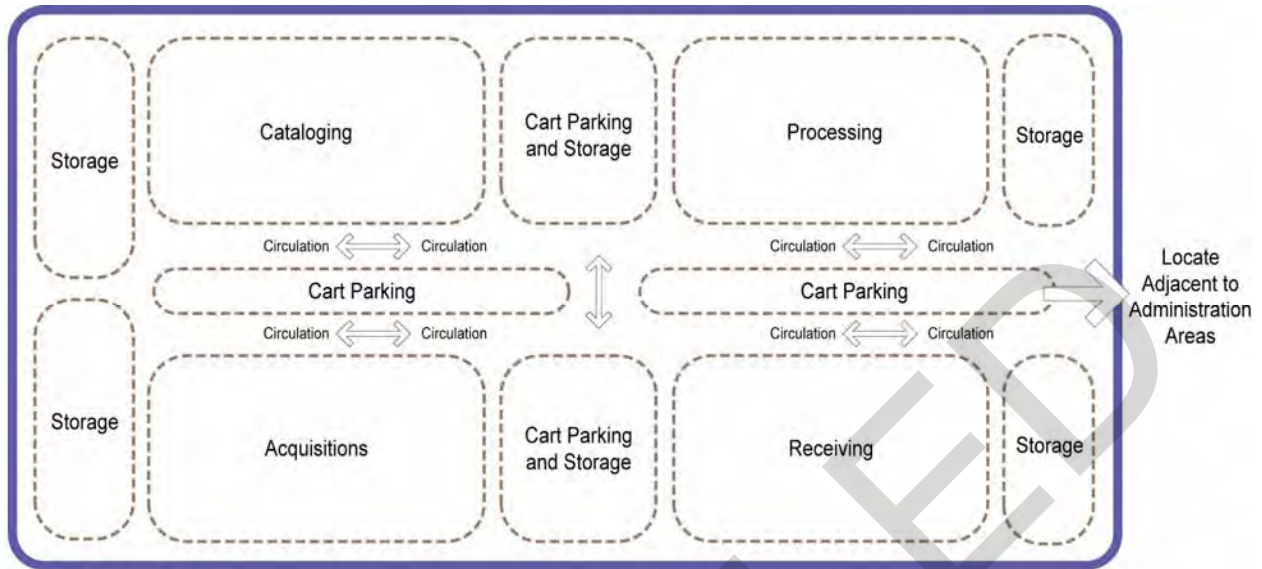
Open Workroom Plan

4-7.3   **Acquisitions**
Provide a desk, chair, file cabinets, shelving, storage space for carts, and over-sized work surfaces or counter space for equipment and materials. Include computer network connections with Internet access, electrical outlets, and a telephone line at each workstation. Consider the need for a shared work table where materials and equipment may be spread out and reconfigured to suit each task. Provide adequate storage space for materials and equipment that is convenient to the work table.

4-7.4   **Cataloging**
Provide a desk, chair, file cabinets, shelving, storage space for carts, and over-sized work surfaces or counter space for equipment and materials. Include computer network connections with Internet access, electrical outlets, and a telephone line at each workstation. Consider the need for a shared work table where materials and equipment may be spread out and reconfigured to suit each task.

4-7.5   **Receiving**
Provide a desk, chair, file cabinets, shelving, storage space for carts, and over-sized work surfaces or counter space for equipment and materials. Include computer network connections with Internet access, electrical outlets, and a telephone line at each workstation. Consider the need for a shared work table where materials and equipment may be spread out and reconfigured to suit each task.

4-7.6   **Processing**
Provide a desk, chair, file cabinets, shelving, storage space for carts, and over-sized work surfaces or counter space for equipment and materials. Include computer network connections with Internet access, electrical outlets, and a telephone line at each workstation. Consider the need for a shared work table where materials and equipment may be spread out and reconfigured to suit each task.

4-7.7   **Work Rooms**
Design the work room for changing work patterns. In larger facilities, consider the designs that include a set of interrelated subspaces. Work rooms often require expansion, so sizing them generously at the design stage will minimize this need. Locate adjacent to the break room and restrooms for easy access to sinks for washing hands and cleaning. Provide convenience electrical outlets above counters and on walls just above the floor. Provide electrical outlets that are flush with the floor covering to accommodate different furniture layouts. Provide telephone and data connection to each potential work area and accommodate the potential for future requirements. Provide centrally located printers, scanners, and a copier.

Provide a dedicated space for large trash cans, recycling containers, a paper shredder, and a water cooler. Provide a tack board for posting notices, announcements, and required installation specific emergency procedures. Provide a utility sink with hot/cold water, soap dispenser, cabinet storage space, towel dispenser, and task lighting over the counter if restrooms are not located close by. Consider the need for a white board to display and communicate staff action items or issues. Consider the need for a closet for storage of staff personal items or provide shelves, coat racks, and other similar storage opportunities.

4-7.8   **Storage Rooms**
Locate adjacent to the work room and other administrative areas. Provide shelving that is a minimum of 300 mm (12 inches) deep, where possible, and a lockable door. The minimum width of storage rooms is 900 mm (3 feet), not including the depth of shelves. Include storage accommodations for library furnishings, boxes, seasonal items, easels, stands, book carts, posters, promotional materials, crafts, multiple shelving components that range in size from 900 x 250 mm (36 x 10 inches) to 2100 x 600 mm (84 x 24 inches), and activity materials for children.
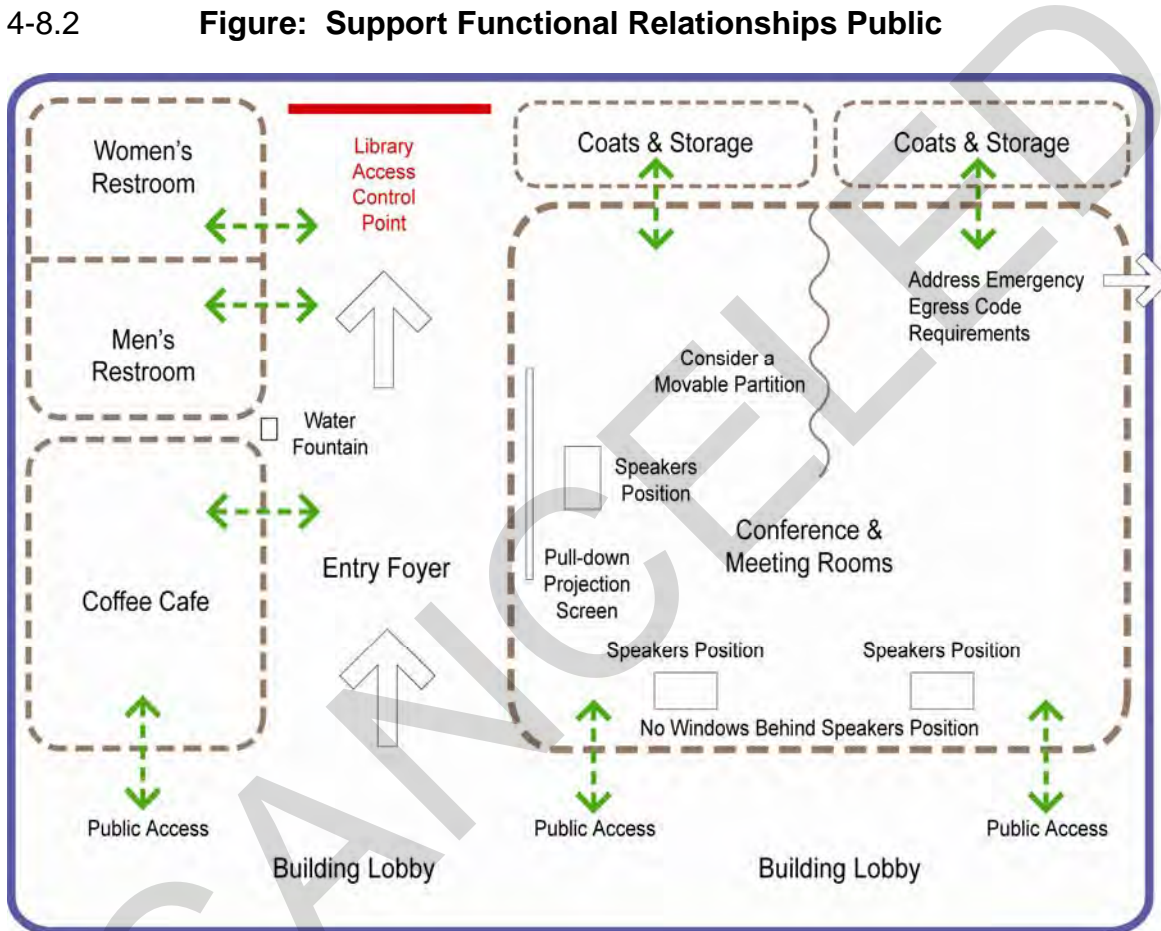
4-8   **SUPPORT**
Core areas that support the overall facility include the vestibule/airlock at the entrance, lobby, and circulation areas throughout the facility. Support areas, like conference/meeting rooms, coffee cafes, restrooms, and water fountains, may need to be located outside the access control point of the library for public access during times when the library is closed. Conference/meeting rooms may be utilized for meetings, seminars, lectures, story hours and other children's programs, A/V presentations, films, music, temporary exhibitions, receptions, adult study, and other similar functions. Not all events conducted in these rooms will be related to library activities. Staff only support areas include the loading dock, storage, and mechanical rooms.

4-8.1   **Primary Design Considerations**
Design the entrance and circulation areas to orient customers to the library and its functional areas. Utilize only one main public entrance/exit with security equipment to the library facilities for supervision and access control. All other customer exits from the facility should be alarmed emergency egress doors to make the security system effective. Provide floors that are easily cleaned and moisture resistant. Consider the requirements for displays and exhibits in the public areas. Consider a design statement

that reflects the local culture. Ensure that conference/meeting rooms are located so they can be utilized at times when the rest of the library is closed. Consider locations near the library entrance and the circulation desk for conference rooms. Locate activity rooms near restrooms and coat storage closets. A conference/meeting room's length should not be more than twice its width. The minimum ceiling height should be 2700 mm (9 feet) for rooms with occupancy for 50 or less, and 3000 mm (10 feet) for occupancies greater than 50. Provide signs featuring the library floor plan to help direct customers.

4-8.2   **Figure: Support Functional Relationships Public**

4-8.3 **Figure: Supports Functional Relationships Staff Only**

Provide Lockable Exterior Access to Mechanical Rooms

Mechanical Room

Storage

Provide Covered Access to Loading Docks

Loading Dock

Access to Technical Services and Administartion Areas

Staff Only Support Areas May be Detached From Public Support Areas

4-8.4 **Vestibules and Airlocks**

Consider the climatic issues at each installation when designing entry vestibules and provide double sets of entrance doors to create an airlock. Provide wheelchair accessible ramps and automatic doors according to ADAAG requirements. Walk-off mats inside the airlock and removable rugs in lobby areas should be provided for particularly bad weather days. Consider built-in drains inside recessed walk-off mats in foyers to allow water to drain off, and heated mats in cold weather climates. Provide adequate ventilation or climate control to prevent moisture accumulation or condensation. Provide signage at the front entrance that displays the library's hours of operation and force protection condition status. Provide a trash container and ash receptacle outside of the building, near the entrance.

4-8.5 **Entry Lobbies and Foyers**

Entry lobbies and foyers should address bad weather requirements with easily cleanable floor materials. Provide a usage counter to track customer quantities and accommodations for security gates, inventory control, and magnetic theft detection equipment. This equipment must be located a minimum of 900 mm (3 feet) from metal structures. Provide public telephones, bench seating, bulletin boards, and display areas in the entry lobby and foyer areas. Provide adequate accommodations for coat, hat, and umbrella storage for customers according to the climatic conditions. Consider the need for informational displays and brochures to display promotional items for special events.

4-8.6 **Conference/Meeting Rooms**

Locate conference/meeting rooms off the entry lobby so its hours do not have to coincide with the library's hours. Designs should accommodate groups of different sizes (from a seating capacity of 30 for smaller facilities to 80 for larger ones) and a variety of furnishing arrangements. Provide a moveable partition in larger conference/meeting rooms so that two simultaneous functions can occur. In this case, each room shall have direct access to the entry lobby for separate access control and ensure each portion of the room has the required egress routes or emergency doors, as required by codes. Design the room so that it can be darkened for film presentations.

Provide locally controlled dimmer switches for lights. Consider the need for telephone and video conferencing and provide the required infrastructure to provide these capabilities. For large conference rooms, consider the need for a small enclosed kitchenette with folding doors.

Locate the speaker's areas to reduce disturbances from people entering and exiting, and from direct sunlight and glare. Do not place windows directly behind the speaker's position. Provide a coat closet near the door and lockable storage that is directly accessible from the conference/meeting rooms. Storage rooms should be large enough to accommodate storage of tables and stacking chairs used in the activity rooms. For divisible rooms, this storage should be located in a common area that provides access from each room, such as off the entry lobby. Provide modular furniture and conference tables with Internet access, a speaker phone, data, and power accommodations. Provide a drop-down projection screen and wall mounted white boards. Consider providing a smart board connected electronically to a networked printer. Provide millwork for conference materials, storage, displays, or refreshments. Provide a credenza for storage, A/V cart, and trash cans.

4-8.7   Coffee Cafes

Consider the need for a coffee café within the non-secured area of the library lobby that would serve coffee, espresso, other beverages, light snacks, and other items similar to those served in commercial book stores and public libraries. Vendor services should be provided by outside sources and should not be considered part of the responsibilities of the library staff. Coffee cafes should be located near the main entrance area in a prominent location that will not disturb library operations. Locate coffee cafes in an area of the library, such as a shared lobby that can be accessible to the public during hours when the rest of the library facility is closed and secured. Consider the need for an additional exterior entrance to the coffee cafe and locate appropriately.

4-8.8   Vending Machines

Address the need for snack or drink machines and other vendor supplied equipment located near the lobby or foyer. Locate vending machines in an alcove or area with only partial view from the entrance or lobby. Do not place vending machines at the entrance or in the lobby because it is extremely unsightly.

4-8.9   Public Restrooms

Provide both male and female accessible restrooms according to ADAAG requirements. The number of toilets and urinals required will vary according to the overall size of each facility. Locate restrooms off the entry lobby to allow access for users of the conference rooms and coffee cafe during times when the library is closed. In such cases, provide a night security closure at the access control point to secure the rest of the library. Restroom entrances should be easily visible from the circulation desk. Include seating for children and baby changing accommodations in both male and female restrooms.

Utilize non-skid ceramic tile or rubber for floors. Finish walls with ceramic tile installed either full height or as a wainscot. Use slab or solid surface composite material at lavatory counters. Provide mirrors, grab bars, soap dispensers, sinks, and paper towel

dispensers or blowers conveniently located near the sinks. Provide sanitary napkin dispensers and disposal units inside the female restrooms. Utilize graffiti-proof toilet stall partitions that are still attractive and compliment the interior designs of each restroom. Provide air fresheners and deodorizing systems for toilets and urinals.

4-8.10   **Water Fountains**
Locate public water fountains near the restrooms. Include full height and wheelchair accessible water fountains according to ADAAG requirements.

4-8.11   **Loading and Receiving Docks**
Provide a covered loading area and double wide exterior doors. Asphalt or concrete access drives to the loading dock must be a minimum of 3650 mm (12 feet) wide for access by large trucks. Consider the requirements for Federal Express, UPS, and large furniture deliveries. Provide easy access to dumpsters or outside trash containers. Provide a doorbell or buzzer at the loading dock entrance door that can be heard in the administration and technical services areas.

4-8.12   **Storage Areas**
Storage areas are vital to librarians for multiple reasons including:

- Monthly in processing and out processing of lease materials

- Storage of supplies, which are usually bought at the end of year in bulk

- New books, which are often bought in bulk at the end of the year

- Items going to the Defense Resources Management Office (DRMO)

- Seasonal displays and decorations

- Supplies, copier paper, and crafts for story time all require adequate storage

Provide storage closets, where possible, to maximize the utilization of available space. Provide lockable doors on all storage closets. Locate an open storage area near the loading dock for items being shipped or received. Verify storage requirements with the library director at each facility, since special storage requirements may be required.

4-8.13   **Janitor Closets**
Locate the janitor closets near the restrooms. Provide a floor mounted mop sink, dry storage for supplies, shelves for maintenance supplies, and a sloped floor with a floor drain. Provide shelves and hooks for cleaning and maintenance equipment storage. All surfaces must have water-resistant finishes. Include enough room for a mobile cleaning cart.

4-8.14   **Mechanical Rooms**
Utilize mechanical rooms, as required, for HVAC, plumbing, electrical, hot water, telephone, fire suppression, and other building systems equipment. Locate mechanical rooms so that they have entry and service doors located on the outside of the building only, to minimize noise and service disruptions. Provide sound proofing, where

required. Utilize a sloped floor towards a floor drain for rooms with equipment involving water or that may leak.

CANCELED

APPENDIX A

REFERENCES

A-1   **GOVERNMENT PUBLICATIONS:**

1.   Air Force Services Agency
       http://www-p.afsv.af.mil

       HQ AFSVA   *AFLIS Requirements*
       10100 Reunion Place
       San Antonio, TX 78216-4138   *AFSVA Golden Eagle Standards*

2.   Air Force Center for Environmental Excellence
       http://www.afcee.brooks.af.mil/afceehome.asp

       HQ AFCEE   *Air Force Interior Design Guides*
       3300 Sidney Brooks
       Brooks City-Base, TX 78235-5112   *USAF Landscape Design Guide*

                                          Air Force Sustainable Facilities Guide

                                          USAF Installation Force Protection Design Guide

3.   Air Force Civil Engineer Support Agency
       http://www.afcesa.af.mil

       HQ AFCESA/CES   ETL 03-3, *Air Force Carpet Standard*
       139 Barnes Drive, Suite 1
       Tyndall AFB, FL 32403-5319   ETL 2-12, *Communications and Information System Criteria for Air Force Facilities*

4.   Air Force e-Publishing
       http://www.e-publishing.af.mil/afpubs.asp

       AFH 32-1084, *Facility Requirements*

       AFI 31-101, *The Air Force Installation Security Program* (FOUO)

AFI 31-203, *Security Forces Management Information System (SFMIS)*

AFI 34-270, *Air Force Library and Information System*

USAFA Instruction 34-102, *The USAF Academy Library System*

5.   Department of Defense (DOD)
http://www.DOD.gov/
http://65.204.17.188/report/doc_ufc.html

DODI 1010.15, *Smoke-free DOD Facilities* (enclosure 11)

DOD Directive (DODD) 2000.12, *DOD Antiterrorism/Force Protection (AT/FP) Program*

DOD Instruction (DODI) 2000.14, *DOD Combating Terrorism Program Procedures*

EUCOM Operations Order 03-11 with FRAGO (latest edition)

UFC 1-200-01, *Design: General Building Requirements*

UFC 3-120-01, *Design: Air Force Sign Standard*

UFC 3-410-01FA, *Design: Heating, Ventilating, and Air Conditioning*

UFC 3-410-02A, *Design: Heating, Ventilating, and Air Conditioning (HVAC) Control Systems*

UFC 3-420-01, *Design: Plumbing*

UFC 3-520-01, *Design: Interior Electrical Systems*

UFC 3-600-01, *Design: Engineering Fire Protection*

UFC 3-600-02, *O&M: Inspection, Testing, and Maintenance of Fire Protection Systems*

UFC 3-400-01, *Design: Energy Conservation*

UFC 4-010-01, *DOD Minimum Antiterrorism Standards for Buildings*

UFC 4-010-02, *Design (FOUO) DOD Minimum Standoff Distances for Buildings*

UFC 4-021-01, *Design and O&M: Mass Notification Systems*

6.   U.S. Army Corps of Engineers
      http://www.usace.army.mil/usace-docs/

      USACE Publication Depot   DG 1110-3-122, *Interior Design Guide*
      2803 52nd Ave.
      Hyattsville, MD 20781-1102

7.   Naval Facilities Engineering Command
      http://www.efdlant.navfac.navy.mil/criteria

      Engineering Innovation and Criteria   P-80, Facility Planning
      Office
      1510 Gilbert Street   NAVFACINST 11010.45D,
      Norfolk, VA 23511   Comprehensive Regional Planning
                                               Instruction

                                               MIL-HDBK 1003/3, *Heating, Ventilating,
                                               Air Conditioning, and Dehumidifying
                                               Systems*

                                               NAVFAC Cost Engineering

8.   SECNAV/OPNAV Directives Control Office
      http://neds.nebt.daps.mil/usndirs.htm

      N09B15   OPNAVINST 11010.20F, *Facilities
      Washington Navy Yard, Bldg. 36   Projects Manual*
      720 Kennon Street, SE Rm 203
      Washington Navy Yard, DC 20374

9.   U.S. Department of Commerce
      http://www.ita.doc.gov

      International Trade Administration   *Electric Current Abroad*
      14th & Constitution Ave, NW
      Washington, DC 20230
      (202) 482-3917

10.   U.S. Department of Labor

http://www.osha.gov

Occupational Safety & Health
Administration
200 Constitution Avenue, NW
Washington, DC 20210
(800) 321- 6742

29 CFR 1910.1048
Formaldehyde Standard

11.   National Institute of Building Sciences
        http://www.nibs.org

1090 Vermont Avenue, NW
Suite 700
Washington, DC 20005-4905
(202) 289-7800

Whole Building Design Guide
http://www.wbdg.org

CANCELED

12.   National Archives and Records Administration
http://www.gpoaccess.gov/nara/index.html

700 Pennsylvania Avenue, NW
Washington, DC 20408
(866) 325-7208

Architectural Barriers Act
(Public Law 90-480) of 1968
http://www.access-board.gov/ufas/ufas-html/ufas.htm - ABA

http://www.access-board.gov/ufas/ufas-html/ufas.htm	Uniform Federal Accessibility Standards (UFAS), published as Federal Standard (FED-STD)-795
http://www.access-board.gov/adaag/html/adaag.htm	28 CFR Part 36, the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)

A-2   **NON-GOVERNMENT PUBLICATIONS:**

1.   American Library Association
          http://www.ala.org/

          50 East Huron
          Chicago, IL 60611
          (800) 545-2433

2.   Architectural Woodwork Institute
          http://www.awinet.org

          1952 Isaac Newton Square West   *AWI Quality Standards Illustrated*
          Reston, VA 20190   (Current Edition)
          (703) 733-0600

3.   ASTM International
          http://www.astm.org

          100 Barr Harbor Drive
          PO Box C700
          West Conshohocken,
          Pennsylvania, 19428-2959
          (610) 832-9585

4.   The Carpet and Rug Institute
          http://www.carpet-rug.com

          310 Holiday Avenue
          Dalton, GA 30720
          (706) 278-3176

5.   International Code Council
          http://www.iccsafe.org

          Headquarters   International Plumbing Code
          5203 Leesburg Pike
          Suite 600   International Mechanical Code
          Falls Church, VA 22041
                                               International Building Code

6.   National Fire Protection Association
       http://www.nfpa.org

       1 Batterymarch Park   NFPA 70, *National Electric Code (2002)*
       Quincy, Massachusetts 02169-7471
       (617) 770-3000   NFPA 72, *National Fire Alarm Code*

                                              NFPA 90A, *Standard for the Installation
                                              of Air-Conditioning and Ventilating
                                              Systems*

                                              NFPA 101, *Life Safety Code*

7.   The United States Green Building Council
       http://www.usgbc.org

       US Green Building Council   LEED™ Green Building Rating System
       1015 18th Street, NW, Suite 805
       Washington, DC 20036

APPENDIX B

ILLUSTRATIVE DIAGRAMS

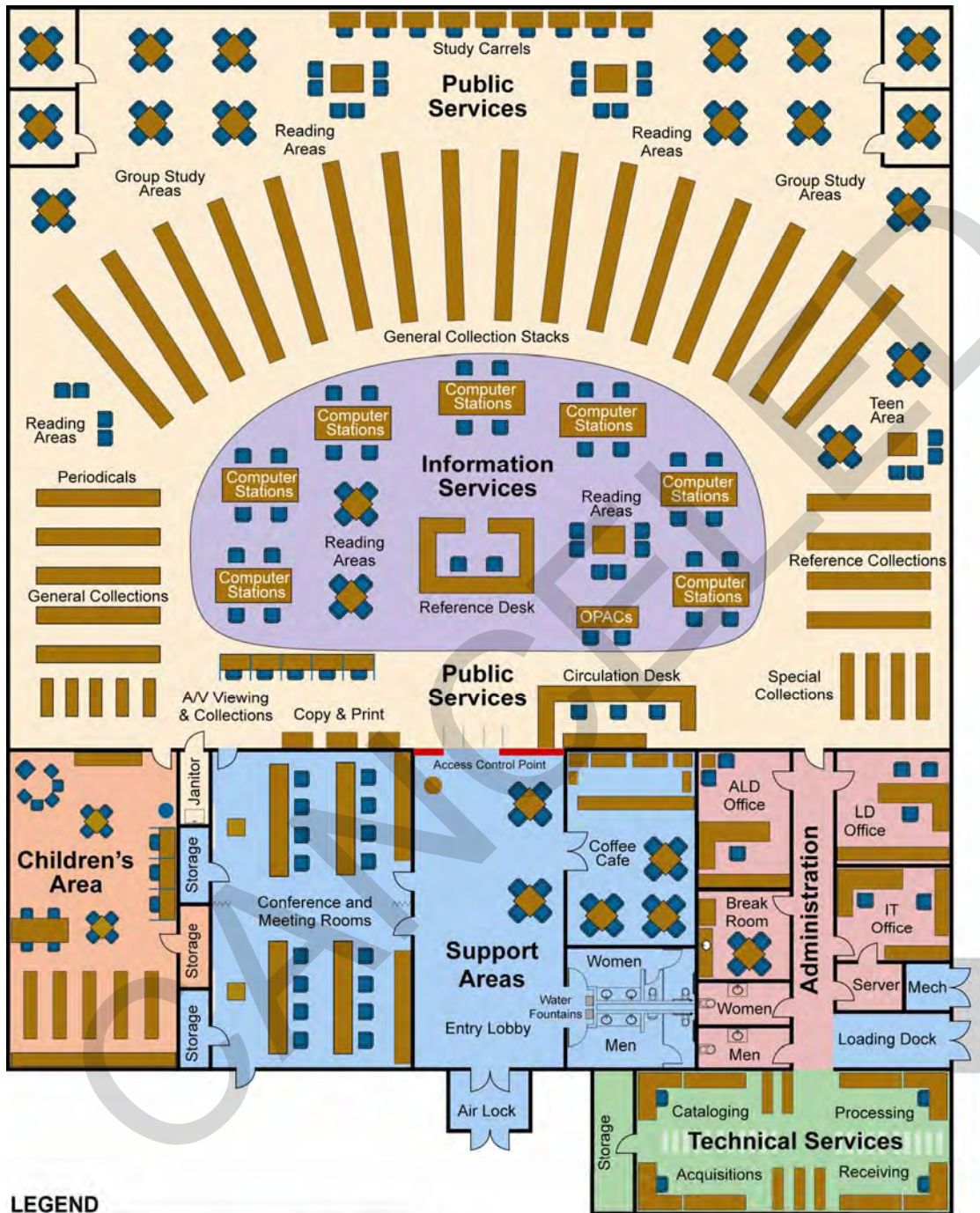B-1   **ILLUSTRATIVE DIAGRAMS**
The following illustrative diagrams address large, medium, and small prototypical general library facilities (Figures B-2 through B-4). They do not represent mandatory or even suggested layouts, but are provided to expand on the functional diagrams and other UFC to convey a *possible means* to accommodate the needed adjacencies.
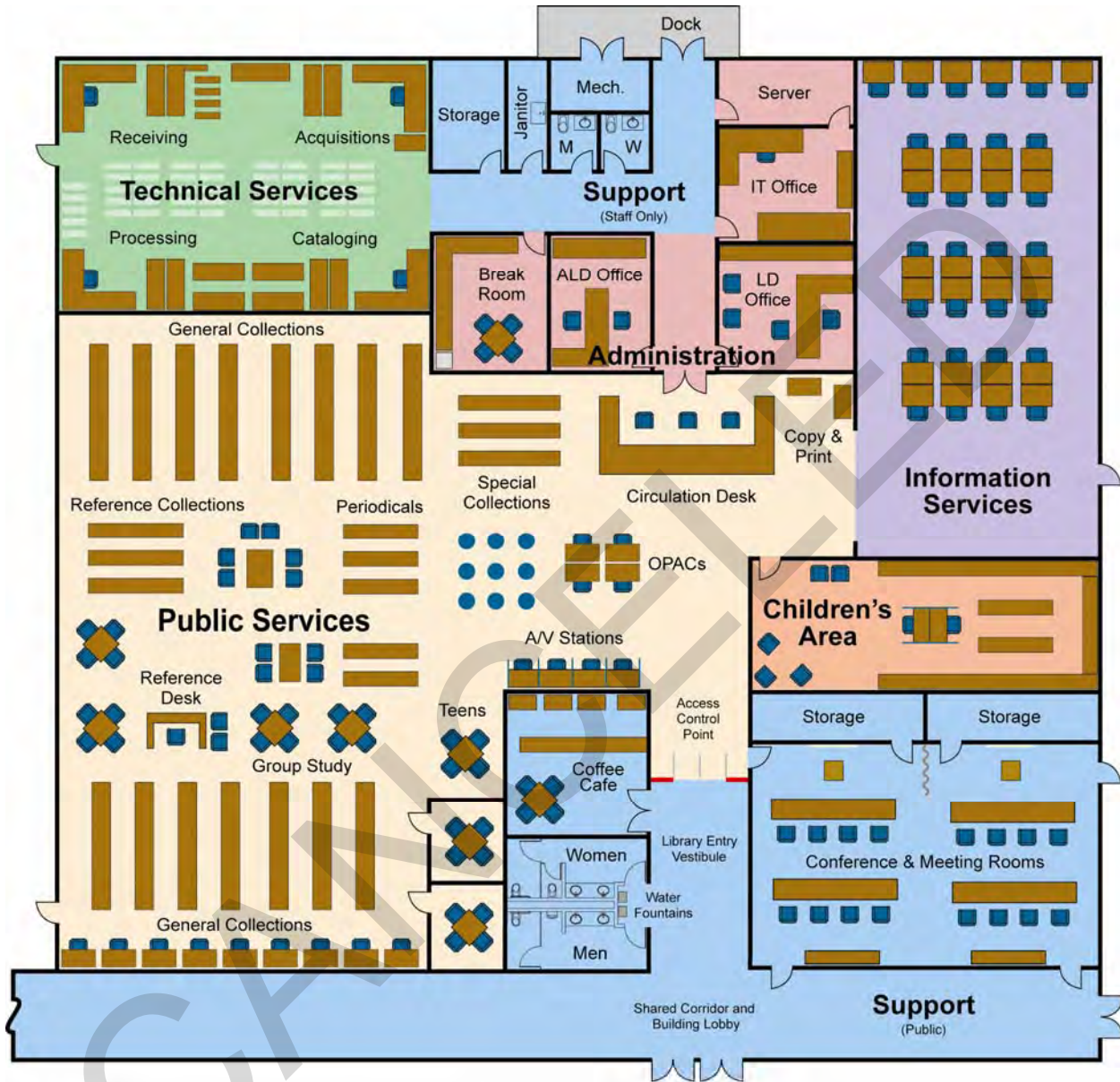
B-2   **LARGE GENERAL LIBRARY FLOOR PLAN**

B-3   **MEDIUM GENERAL LIBRARY FLOOR PLAN**

LEGEND

Public Services		Administration Areas
Information Services		Technical Services
Children's Area		Support Areas

B-4   **SMALL GENERAL LIBRARY FLOOR PLAN**

LEGEND

Public Services		Administration Areas	
Information Services		Technical Services	
Children's Area		Support Areas	

APPENDIX C

FIGURES AND TABLES

C-1   **FIGURES**

C-2   **TABLES**

APPENDIX D

GLOSSARY

D-1 **ACRONYMS**

ACO. Administrative Contracting Office

ACRL. Association of College and Research Libraries

ADPE. Automated Data Processing Equipment

ADA. Americans with Disabilities

ADAAG. Americans with Disabilities Act Architectural Guidelines

ADPE. Automated Data Processing Equipment

A/E. Architect/Engineer

AEI. Architectural and Engineering Instructions

AEF. Air Expeditionary Force

AFCEE. Air Force Center for Environmental Excellence

AFCESA. Air Force Civil Engineer Support Agency

AFDIR. Air Force Directive

AFH. Air Force Handbook

AFI. Air Force Instruction

AFLIS. Air Force Library Information System

AFMAN. Air Force Manual

AFPD. Air Force Policy Directive

AFRES. Air Force Reserve

AFSVA. Air Force Services Agency

ALA. American Library Association

ANSI. American National Standards Institute

APF. Appropriated Funds

ASTM. American Society for Testing and Materials

AT/FP. Antiterrorism / Force Protection

A/V. Audio/Visual

ACRL. Association of College and Research Libraries

BEAP. Base Exterior Architectural Plan

BEC. Base Education Center

BRAC. Base Realignment and Closure

CATV. Cable Television

CCTV. Closed Circuit Television

CD. Compact Disk

CD-ROM. Compact Disk Read Only Memory

COMPUSEC. Computer Security

CONUS. Continental United States

COSATI. Committee on Scientific and Technical Information

CPSC. U.S. Consumer Product Safety Commission

dBA. Decibels

DDN. Defense Data Network

DOD. Department of Defense

DODD. Department of Defense Directive

DODI. Department of Defense Instruction

DODLS. Department of Defense MWR Library Standards

DSN. Defense Switched Network

DVD-ROM. Digital Versatile Disk Read Only Memory

E-Mail. Electronic Mail

EAP. Education Assessment Program

EPL. Electronic Publishing Library

EMCS. Energy Management and Control System

EPA. Environmental Protection Agency

ESO. Education Services Officer

ETS. Electronic Transfer System

FADS. Fire Alarm and Smoke Detection System

FEDLINK. Federal Library and Information Network

FED-STD. Federal Standard

FEMP. Federal Energy Management Program

FDS. Family Discovery Center

FF&E. Furniture, Fixtures and Equipment

FL. Air Force Library Account

FLICC. Federal Library and Information Center Committee

FOA. Field Operating Agencies

FPCON. Force Protection Condition

FY. Fiscal Year

GFCI. Ground-Fault Circuit Interrupter

GES. Golden Eagle Standards for Air Force General Libraries

GSA. General Services Administration

HAWC. Health and Wellness Center

HQ USAF. Headquarters United States Air Force

HVAC. Heating, Ventilating, and Air Conditioning

IESNA. Illuminating Engineering Society of North America

ILL. Inter-Library Loan

ILS. Integrated Library System

ISP. Internet Service Provider

IT. Information Technology

LAN. Local Area Network

LARP. Library Annual Report Program

LC. Library of Congress

LEED. Leadership in Energy and Environmental Design

LEOS. Library Electronic Ordering System

LES. Library Extension Services

LRC. Learning Resource Center

MAJCOM. Air Force Major Command

MARC. Machine Readable Cataloging

MILCON. Military Construction

MIL-HDBK. Military Handbook

MWR. Morale, Welfare, and Recreation

NATO. North Atlantic Treaty Organization

NAVFAC. Navel Facilities Engineering Command

NEC. National Electric Code

NFPA. National Fire Protection Association

NISO. National Information Standards Organization

NRC. Noise Reduction Coefficient

OCLC. On-Line Computer Library Center

OCONUS. Outside Continental United States

OLUC. On-Line Library Union Catalog

OPAC. On-Line Public Access Catalog

OPNAV. Chief of Naval Operations

PA. Public Address

PME. Professional Military Education

PO. Private Organization

PWS. Performance Work Statement

SKT. Specialty Knowledge Test

SLA. Special Libraries Association

SOW. Statement of Work

SRAN. Supply Record Account Number

SVS. Services Squadron

UFAS. Uniform Federal Accessibility Standards

US. United States

USAF. United States Air Force

USAFE. United States Air Forces in Europe

USAFSE. United States Air Force Supervisory Examination

USGBC. United States Green Building Council

VEP. Voluntary Education Programs

VI. Visual Information